THE OLD TIMER'S BULLETIN

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Published for the Old Time Wireless Operator, Historian and Collector

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(See page 44)

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American Association of Museums
Regional Conference of Historical Agencies

ANTIQUE WIRELESS ASSOCIATION, INC.
HOLCOMB, NEW YORK 14469

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"The Old Timers Bulletin"

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Penn Yan, NY 14527

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All official business, Conference and meeting activities.

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Want Ads.

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Old Timers Bulletin material, Museum artifacts.

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Financial reports, back issues of Bulletin.

Charles Brelsford, 255 Danbury Circle S., Rochester, NY 14618
Museum business and publicity.

IN THIS ISSUE
— SPECIAL FEATURES —

Page	Feature
4.	Association News
6.	Editor's Notes
7.	Coming Events
8.	Obituaries
9.	Annual Meeting Report
10.	GILFILLAN BROS. Part II by Floyd Paul, W6THU
15.	COLLECTING LITERATURE by Carlos Fazano
16.	JAGADIS BOSE and his GALENA DETECTOR by Wm. Denk, W3IGU
19.	Australian Broadcasting
20.	The SCHICKERLING TUBE by Alan Douglas
22.	The MC MURDO-SILVER 5-C by Bill Fizette, K3ZJW
25.	Value of DE FOREST Tubes by Lauren Peckham
26.	Want Ads
31.	Book Reviews
32.	PEDESTAL SPEAKER by Floyd Paul, W6THU
33.	New Members
34.	Turn-of-Century Detector by Carl Apple
36.	MORSE vs CONTINENTAL Code by Don deNeuf, WA1SPM
37.	OT Contest Results
38.	AWA Museum Annex
41.	Problem Solvers
42.	1914 Want Ads
43.	A rare Marconi Key
44.	Museum News

AWA NET

Frequency change for AWA Net:

TUESDAY 8 PM 3837 kc.

(Not 3867 kc.)

Change In Address?

All address changes and dues MUST be sent to: Bruce Roloson, Box 212, Penn Yan, New York 14527

Writing AWA Headquarters? Please enclose SASE for prompt reply....

COMING EVENTS
ANTIQUE WIRELESS ASSOCIATION

JUNE 6-7	AWA CANADIAN MEET Guelph, Ontario
JULY 7-9	HISTORICAL SEMINAR Imperial College London, England
JULY 19	NEW ENGLAND MEET French Cable Museum Orleans, Mass.
AUG. 16	SUMMER MEET NFWA-AWA, Elma, N.Y.
AUG. 23	Summer Work Party
SEPT.	GAITHERSBURG HAMFEST AWA booth, Gaithersburg, Md.
SEPT. 24-28	AWA NATIONAL CONFERENCE Canandaigua, N.Y.
OCT.	GOLD COAST HAMFEST Clearwater, Fla.
OCT. 26	Museum closes for season.
NOV.	V.R.P.S.- AWA Meet Dallas, Texas
NOV. 2	Annual AWA Business Meeting Canandaigua, N.Y.
NOV. 30	Annual Christmas Party East Bloomfield, N.Y.

Other events to be announced.

SILENT KEYS

Peter Testan, W2HA
Virgil Cowen
Howard Parmelee, K2INV
Robert Wahlstrom
Don Whittemore, W2CUZ
Thomas Boyd, W5QVZ

AWA NETS (EST/ESDT)

PHONE (SSB)

Sunday: 7247 kc. at 12 noon
3867 kc. at 5 PM

Tuesday: 14274 kc. at 2:30 PM
3837 kc. at 8 PM

Mon.-Wed.-Fri.: 3867 at 9:30 AM

CW -- 3584 kc. 4 PM daily
First Wednesday each month at 8 PM

ASSOCIATION NEWS

Report by Cicely Blossom-Smith

1986 CONFERENCE INFORMATION

Wednesday, Sept. 24 thru Sunday, Sept. 28
Sheraton Inn, Canandaigua, New York

Program schedule, registration card and general information in the AUGUST Bulletin.

OLD EQUIPMENT CONTEST

Listed below are the various categories for the 1986 OLD EQUIPMENT CONTEST. Note there are several new classes which have been requested by members: Telegraph sounders and Relays plus early transistors and associated products. The latter is most appropriate with Dr. John Bardeen as guest speaker. The Tesla category fits in very nicely with the "AWA TESLA YEAR" recognition.

--Ralph Williams

1. Tesla Artifacts
2. Early Transistors and radios.
3. Crystal and Passive detector receivers.
4. One and Two tube receivers.
5. Three tube receivers
6. Four & Five tube receivers.
7. Six and more tube receivers.
8. Spark transistors and artifacts.
9. Tube transistors and artifacts.
10. Telegraph sounders and relays.

TO BE AWA SPEAKER NOBEL PRIZE WINNER

Dr. John Bardeen, recipient of two Nobel Prizes, will be the Guest of Honor at the 1986 AWA Conference. The Association is indeed fortunate to have this distinguished scientist as their Guest.

Dr. Bardeen was a member of the team that developed the transistor which revolutionized the radio and electronic industry. For this achievement, they were awarded the Nobel Prize in 1956. In 1972, Dr. Bardeen was again given the Nobel Prize in Physics, this time for his work in the Theory of Superconducitvity. He is currently professor of physics and electrical engineering at the University of Illinois.

IMPORTANT NOTICE !

Effective with the September issue, all Old Timer Bulletin mailing dates will be advanced by **FOUR (4)** weeks. This means the September issue will be mailed in August, etc. Dates for future issues are as follows:

AUGUST – NOVEMBER – FEBRUARY – MAY

Deadline for the *OTB* ads will be:

June 10, Sept. 10, Dec. 10, March 10

There are several reasons for this change. For nearly 26 years the *OTB* has been mailed about the same time as the heavy December Christmas mail. This is not a good time for mailing or for return renewal letters.

Another equally important reason is the June Conference notice and registration card mailing. It is more timely to have this mailing closer to the late September Conference date. Henceforth, there will be a Conference resume in the May issue with the program and registration card in the August issue.

A repeat: The SEPTEMBER issue will be mailed in AUGUST and ads must be received by June 10 (not July 10).

PROGRAM AT THE CONFERENCE:

The UNTOLD STORY OF HAMMARLUND

A favorite receiver before the War and for a short time after, was the Hammarlund. Remember the famous HQ-120X, then the 129X and other models? How about the big SP-400 and 600? Then sometime in the dim past there was the Hammarlund-Roberts broadcast receiver. The story of this well-known company and their products will be told by popular engineer-speaker Stu Meyer, W2GHK, former president of Hammarlund and currently Manager, Government and Industrial Relations for the E. F. Johnson Company.

ASSOCIATION NEWS

BRITISH TECHNICAL WRITER TO BE SPEAKER

Members attending the '86 Conference will have an opportunity to learn about collecting radio equipment in England. Our speaker, Jonathan Hill, an authority on British-made products, will cover a wide range of receivers: crystal sets to AC receivers, and comment on their identification and value.

Hill is a professional photographer and technical writer, His book " The Cat's Whisker", is in the same category in England as McMahon's books are here.

What's Coming Next!

The results of the questionaire sent out in the last OTB indicates members are interested in having AWA publish additional historical material. See next OTB for followup.

BACK ISSUES

The following OLD TIMERS BULLETINS remain in stock. Make check out to A. W. A. and mail to:

Dexter Deeley
8 Briar Circle
Rochester, N. Y. 14618

Vol. #	Vol. #	Vol. #	Vol. #
18-3	22-1	23-4	25-1
18-4	22-2	24-1	25-3
21-2	23-1	24-2	25-4
21-3	23-2	24-3	26-1
21-4	23-3	24-4	26-2

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15-4	19-2	22-3	
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Issues with Monograph
$3.00 each ppd. (1st class mail)

17-4 (Index) 18-1
$4.00 each ppd. (1st class mail)

Vol. 1 #2 and #3 (reprints for reference.) 50¢ each ppd.

FIRST CANADIAN MEET

GUELPH, ONTARIO JUNE 6 & 7

Headquarters: Holiday Inn
(Stone Rd. near Hanlon Pkwy.)

Program:

Friday 2 PM - Tour through a modern transformer manufacturing plant.
Open house at Hammond Museum.
6 PM Dinner and "get-to-gether".

Saturday 9 AM Flea market and programming.
Open house at Hammond Museum.
Luncheon and program.

Advance information and directions necessary for those who plan to attend.
Write either: Lauren Peckham,
Ormiston Rd., Breesport, NY 14816
or, Fred Hammond,
81 College Ave. West, Guelph,
Ontario N1G 1S2 Canada

AWA IN ENGLAND
Imperial College of Science and Technology

AWA is participating in an unusual series of lectures on the development of early wireless at Imperial College, London, England. The series is sponsored by the British IEE, IERE, BVWS and AWA.

AWA is represented by vice-president Bruce Roloson, who will give a paper on deForest and the development of the triode tube. British AWA members on the program include Anthony Constable, Dr. Vivian Phillips, Roger Snelling and our '86 Conference speaker, Jonathan Hill, who will discuss wireless design.

This is a most rare event, possibly once-in-a-lifetime opportunity for the radio historian, which AWA members in both USA and the United Kingdom are urged to attend. The 3-day series will start July 7th and continue through July 9th.

For additional information, write:
Mr. J. Stanley, Registry
Imperial College, London SW7 2AZ U.K.

EDITOR'S NOTES

PROGRAM AT THE CONFERENCE:

VACUUM TUBE SEMINAR

Repeated requests bring back this popular session. Well known authorities will display and identify unusual radio tubes. This is an unique and highly specialized session.

If you have a tube you would like identified, here's your chance: 4 p.m. Thursday.

KIT POWER SUPPLY

Visitors to the Museum have asked the source of the commercial A-B-C power supplies used to power early battery receivers for demonstration purposes. These power supplies are made by Gary Schneider and are very professional both in appearance and operation. They are supplied either in kit form or ready assembled.

In a recent letter he tells me he may again have them available later this year. Wait for announcement. Gary is the Editor of "Antique Radio Classified". If you're not already a subscriber, write for information:

Gary Schneider
9511 Sunrise Blvd.
Cleveland, Ohio 44133

The TUBE COLLECTOR

While a small segment of hi-fi buffs swear by tube audio amplifiers, many others use tubes and will continue to indefinitely.

An article in December's *BROADCAST ENGINEER* magazine discussed the merits of tubes in high power RF amplifiers. In fact, the broadcast industry has no alternative but to use tubes in amplifiers at the 50 to 100 KW level since the most advanced solid-state design can't approach this power with adequate cooling and longevity.

Another area of interest is the use of tubes in vital communication. As most of us know, solid-state devices are vulnerable to sudden changes in operating conditions such as nuclear blasts. Tubes are not.

For the past several years, the military has been working on highly sophisticated ultra-miniaturized tube cicuitry which can stand severe electrical shocks. Experimental tubes have been developed in integrated circuits holding thousands of micron-size tubes on super miniaturized circuit boards.

And of course we must have tubes to operate our antique receivers and to fire up our old time transmitters. Tubes are here to stay!

CHRS

The California Historical Radio Society will again hold their SUMMER MEET at Foothill College, Los Altos, California on June 21. For more information, write:

C.H.R.S., Box 1147
Mountain View, Calif. 94040

SILENT KEY WILLIAM HARRISON

William Harrison of Harrison Radio & Electronics Corp. died at the age of 76 years. Harrison started in amateur radio in 1925 and built up a large business selling equipment to fellow amateurs. It had sales of $20 million when he sold the business in 1976.

AWA

NEW YORK

NATIONAL HISTORICAL RADIO CONFERENCE

SHERATON INN, CANANDAIGUA, N. Y.

Wednesday through Sunday, Sept. 24, 25, 26, 27, 28, 1986

"The World's Largest Historical Radio Gathering."

Large outdoor flea market (restricted to members with early equipment). Historical talks, seminars, early gear contests, amateur radio meeting, old gear and tube auction (benefit Museum Fund). women's program. etc.

See AUGUST OTB or write: Dick Ransley, 17 Sheridan St., Auburn, NY 13021

What's Happening

Cape Cod

A.W.A MEET

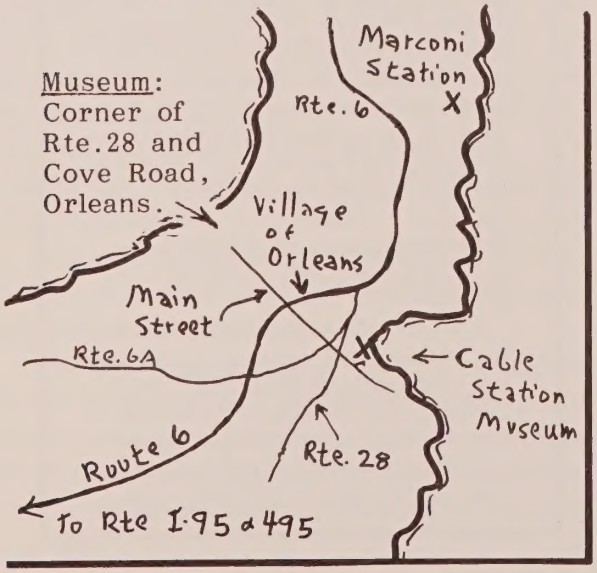
SATURDAY, JULY 19

The FRENCH CABLE STATION

ORLEANS (Cape Cod) MASS.

AWA members are invited to an informal gathering at the French Cable Museum. This unique communication museum was described in the OTB, December, 1984 (Vol. 25, #3) Bud Hall (K2LP) gave further description at the 1985 Conference. There will be guided tours of the small facility and visitors are encouraged to ask questions and take pictures. There will be no formal program. Members may park in the area and freely exchange old gear (flea market) but no room for large campers or trailers.

Come, meet fellow members and have an enjoyable time! Note: There are numerous restaurants and motels in the area if you wish to stay over. As a final bonus, you can visit the famous South Wellfleet Marconi Station Site a little over 10 miles further down the road.....



Announcing:

SUMMER MEET

A.W.A. - N.F.W.A.

SATURDAY, AUGUST 16TH

ELMA CONSERVATION CLUB
and the Kreuzer residence.

Let's have a good turnout for our summer "meet". Here's the schedule:

10:00 AM Flea market at Conservation Club

12:30 PM Dinner ($5.00)

1:30 PM Talks on:

---Homebrew receivers.
---Historical value of the early pioneer developers.

2:30 PM Announcement of Contest Winners.

--Continuation of Flea Market.

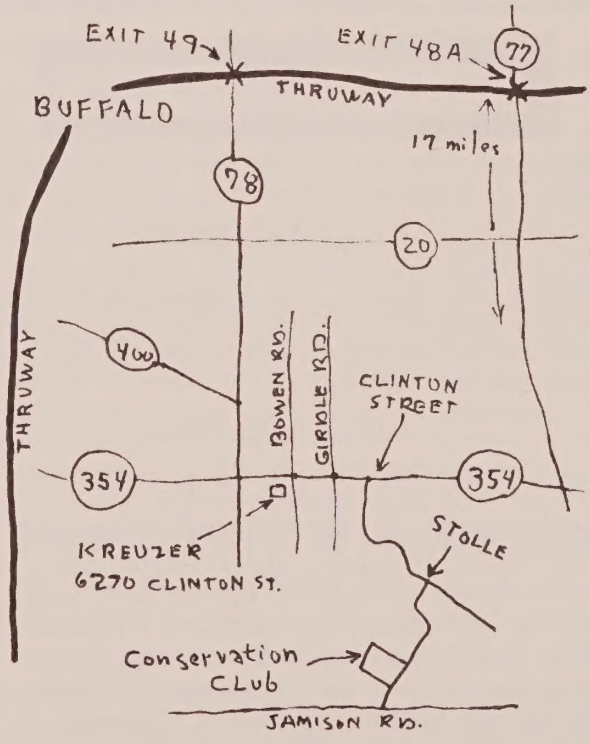
CONTEST CATEGORIES

1. Homebrew receivers
2. Radio catalogs.

Entries accepted between 10 AM and noon.

Visit the Kreuzer Wireless Museum at your leisure-- one of the finest in the area. Dinner reservations absolutely NECESSARY ! Please telephone or write BEFORE AUG. 7

James Kreuzer (716) 681-3186
6270 Clinton St., Elma, N.Y. 14059



Don't forget to make dinner reservations!

RECENT RADIO and ENTERTAINER OBITUARIES

by Paul Feldman

HAROLD W. ARLAN (90 yrs.)

The nation's first full-time radio announcer at pioneer station KDKA during which time he introduced such people as Babe Ruth, Will Rogers, Marshall Foch, etc. He also broadcast the first play-by-play football game between the Univ. of West Virginia and Univ. of Pittsburgh.

WALTER B. GIBSON (88 yrs.)

Creator of the popular radio serial "The Shadow".

GORDON MAC RAE

Vocalist for Texas Star Theater and Telephone Hour. Movie actor.

HENRY ARBEITER (64 yrs.)

Former vice-president of Jerrold Corp., Cable TV pioneer.

DONNA REED (64 yrs.)

TV and movie actress. Star of "The Donna Reed Show".

NED CALMER (78 yrs.)

CBS news analyst.

JAMES J. LAMB

James Lamb (W1AL) died at his Cupertino, Calif. home at the age of 85. Lamb's radio career spanned over 50 years. Of his many patents, the last was a method of radar-error correction. He joined the ARRL staff in 1928 and in time became its technical editor (QST). He later worked for Remington-Rand, then Sperry-Univac, and finally as chief scientist for the Army at Ft. Huachuca. The amateur best knows Lamb for his noise-silencing circuit.

(Clipping from W6SAI)

PRESERVING LOCAL BROADCASTING HISTORY

Congratulations to broadcast station WSB for their foresight in preserving the station's logbooks, records, tapes, letters, scripts, photographs, microphones and turntables. This material was recently donated to Georgia State University leaving the school with a collection unparalleled in the South.

WSB has been the major radio station in this part of the country since the 1920's having started in 1922 with a 100 watt transmitter and going to 50 kilowatts in 1956.

(Copy from Peter Kailus)

Museum News

New Science Museums Open

FRANCE has a new science museum, The City of Science & Industry at LaVillette in Paris. It is a 136- acre urban park with numerous attractions.

INDIA also has a new museum in Bombay which opened last November. It is called the Nehru Science Center and is the largest in the country.

Swiss Museum

Visiting SWITZERLAND this summer? There is a new communication museum in Kreuzlingen that may be of interest. The museum houses early telephones, telegraph and radio artifacts with much of the equipment in operation. Hours: 3 to 7 PM Tuesday & Thursday, and Saturday 2 to 5 PM. Location: Basement of Arcade Building complex, Lowenstrasse 12, Kreuzlingen, Switzerland.

--KA2DYB

HISTORICAL ARTIFACTS

Reward Offered in Mexican Museum Theft

The Association of Friends of Mexico's National Museum of Anthropology and History is offering a reward of 50 million Mexican pesos (approximately $110,000) for information leading directly to the recovery of the objects stolen from the museum on Christmas Eve 1985. Contact the Attorney General's office in Mexico (905-521-0645), the Mexican Embassy in Washington, D.C., or any Mexican consulate in the U.S.

A booklet illustrating and describing the 140 stolen objects may be obtained free of charge from Margarita Gaxiola, Departmento de Registro Publico de Monumentos y Zonas Arqueologicos, Av. Victoria No. 110, Copilco El Bajo, Mexico City, D.F., C.P. 04340, Mexico.

ANNUAL MEETING AND XMAS PARTY

Annual Xmas Party

This report would have appeared in the last OTB, but the picture (above) wasn't available. Brief summary: The secretary, treasurer, and curator gave their annual reports. Several officers and directors were re-elected to their respective offices with Henry Blodgett and Arthur Kelly joining the director's staff. A detailed treasurer's report given on a computer readout was handled by Dex Deeley and Bruce Roloson.

Other subjects covered include: 1986 Conference, proposal to resume printing the AWA Monographs, OTB mailing, and the 1986 budget. Members are encouraged to attend these meetings, which are always held the first Sunday in November, 2 p.m. at the Sheraton Inn, Canandaigua, New York.

The Annual Christmas Party was four weeks later at the Holloway House, East Bloomfield. This is a fun get-together with good food and entertainment. Charles Brelsford displayed a memorial plaque given by Lincoln Cundall's family. It contains a clock and Linc's call-letter license plate and will be placed in the Museum.

A drawing for power bars given through the courtesy of Fred Hammond was followed by movies including a historical film on the last steam passenger train in New York State.

--- **Dick Ransley**

CHANGING SCENES ON U.S. INDUSTRY

First we read that RCA was phasing out its broadcast manufacturing business. This was last fall. RCA had been a leader in this field for over 60 years, and was the last of the old guard, G.E., W.E. and Westinghouse having stopped making broadcast transmitters and related equipment several years ago. New names on the scene include Gates (Harris), Continental, etc.

The big shocker was, of course, the GE and RCA deal earlier this year. Enough has been written about this one.

General Electric again hit the headlines when it announced the phasing out of the manufacturing of television sets in the United States in favor of having them made in Japan – this from an old, well established TV manufacturer.

Next, H. H. Scott Company, a pioneer in high fidelity, has been acquired by the Emerson Radio Corporation and will release a new high-end line of hi-fi components. Scott filed for bankruptcy in 1972 and had been acquired by its Belgian licensee. The present Emerson Radio has no direct corporate relationship with the old Emerson Radio, another pioneer company. The name was acquired a few years ago from National Union which took over the original Emerson Radio .... and so on and on ....

PROGRAM AT THE CONFERENCE:

THE DEVELOPMENT OF THE TRANSISTOR

Dr. John Bardeen, Nobel Prize winner and a member of the team that developed the transistor, will give a personal account of their initial work. This session will be the highlight of our program and an occasion that members will long remember. AWA is indeed fortunate to have this distinguished scientist as a speaker.

GILFILLAN BROS.
Radio Manufacturers
by Floyd A. Paul

Part II

Gilfillan Bros. also made house brand radios (complete radios, not just chassis) for J. W. Robinson (Autocrat), Sears, Barker Brothers (Invincible, later called Templetone), and Western Auto Supply Co. (Western Air Patrol). Western Auto Supply Co., with headquarters in Kansas City, was founded and owned by George Pepperdine. He bought complete radios from Gilfillan and marketed them through his Western Auto Supply Stores in the West. Mr. A. Jennings Brown estimates well over 100,000 sets being made and sold to them during the 1930's.

1930's Product Line

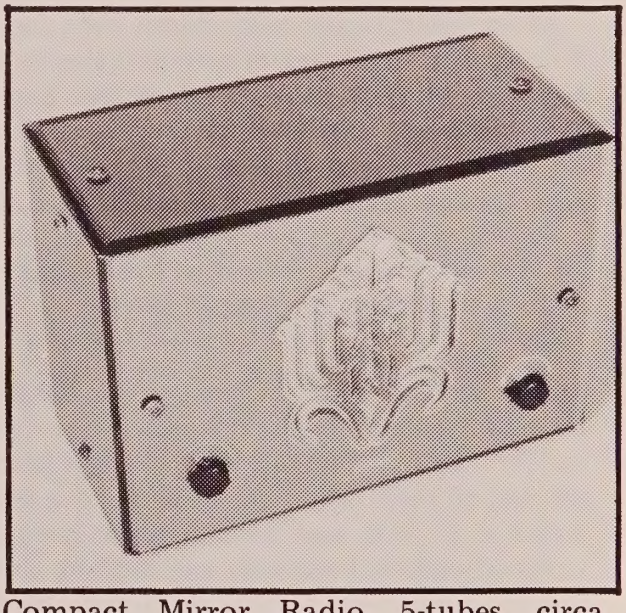
Midget designs (also called mantel or compact) characterized the first part of the '30's. The new midgets halved the average price of a radio in one year. Cathedrals were also a popular styling. Short wave designs showed up in the early '30's. multiband sets were made in both compact and console design. Auto radios were added to Gilfillan's line in 1936.

Mr. Joe Miles[10] recalls it was about the year 1937 that Gilfillan started its own radio wood cabinet shop of some 15,000 square feet in a separate building. From that time on, Gilfillan built its own cabinets in house.

Receivers featured motorized and pushbutton tuning, electric eye tuning and remote control. One unique styling that was experimented with in the 1934-35 time period was mirrored table models. They were first made by Troy Radio, followed by Gilfillan[8] The top, sides and front of the radio were made from beveled panels of slightly tinted Belgium glass. Colors varied from a subtle purple to a darker blue. Sandblasting etched the panel to label the knob, dial scale functions and Gilfillan logos, and also etched out the speaker grille lattice.

[2]In 1939, S. W. Gilfillan, impressed with the increasing quality of programming from television station W6XAO, decided the time was ripe for a Gilfillan television receiver product. The company commissioned the Hazeltine Corporation to provide the drawings for a complete receiver and for Hazeltine to assist with engineering support. Sennet then called Bill Myers into his office and announced, "We are in the television business." Myers was asked to assemble a TV laboratory in 90 days. The model G,12 was first announced in a *Los Angeles Times* ad by Barker Brothers on December 10, 1939. It was particularly pioneering for a small company to venture into the complexities

Model 105 Console, 1929. $187, 9-tube Screen Grid Set.



Compact Mirror Radio, 5-tubes, circa 1934.

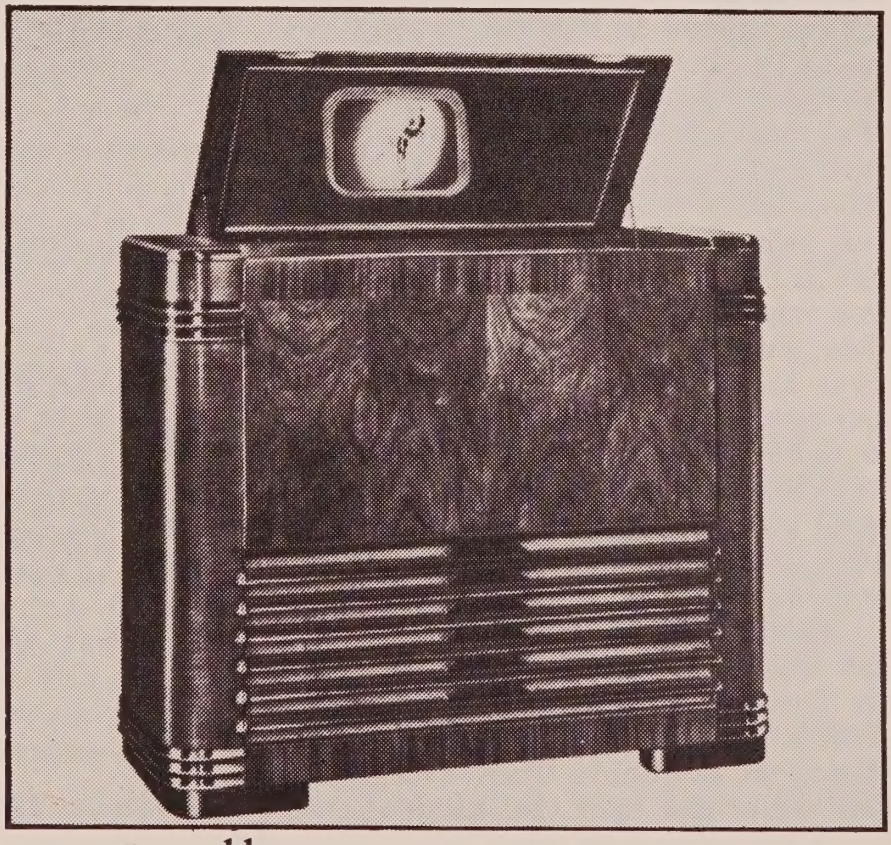
Model 5, 1933 ($31.95) 5-tube Superhetrodyne.

Model 63X, All-Wave, 3-band. 1936.

and economics of television receiver manufacturing. Only the largest Eastern companies (RCA, Dumont, G.E., Andrea and Westinghouse) attempted to market receivers.

Gilfillan Employee Memories

From Roy Culver, retired, living in Glendale, California, came the following: Roy went to work for Gilfillan in 1936 and left in 1939. He was a receiver assembler. He tells of the assembly line in 1936 to 1939 when he was a lead man on



Model G12

Radio/TV Receiver,

1939.

one of the three lines in the downstairs assembly room at 1815 Venice Blvd. Packard Bell had one ten-man assembly line; Gilfillan and Troy had another. (Upstairs were Patterson and Breting.) As a lead man, Roy would go to the stock room and draw out 100 parts, for example, of each item needed to make a radio (his example was a Packard Bell model 5AC which had 6X5, 6SQ7, 6K6, 6SA7 and 6SK7 tubes). He would distribute these parts among the ten positions. Chassis would come to Roy as the first man of ten, with only the sockets installed in the chassis. Roy would mount the power transformer, IF's and solder the transformer leads to the proper terminals. The chassis would be given to the second man who did a comparable amount of "time" work. That time element was about one minute. By the time the tenth man finished the chassis, about ten minutes has elapsed. The tenth man gave the completed chassis to an eleventh man who plugged it in, turned it on, aligned the IF's and checked it for proper operation.

The completed and tested chassis was sent to the cabinet shop for installation in a cabinet, packing and preparation for shipment. Roy estimates a small set would have consumed less than 30 minutes in assembly, test, packing and preparation for shipping. Base pay rate in 1936 for assemblers (all men) was 40 cents per hour. In 1937 the base rate was raised to 50 cents, a 25% increase. Assemblers were paid on a piece work basis so they were given the base but could earn more. Roy said when one particular Packard Bell model No. 120 (a console) was being assembled, an assembler would get $1.00 an hour. He remembers the set run was 100 units at a time. Years later Roy met Mr. Al Ellsworth, Chief Engineer for Packard Bell in the 1937 time period, and asked why they paid more than the going rate for that particular set. Mr. Ellsworth replied that there was a good profit margin in that set, the assemblers always did a good job, and "why rock the boat."

Margaret Lockhart, who joined Gilfillan as a bookkeeper in 1926 and retired as Treasurer in 1966, recalls the early 1930's.[2] "Things became very difficult during the depression. There were regular one dollar and then two dollar cuts in salary, but S. W. Gilfillan was able to keep everyone with the company through the darkest days. We were not allowed to buy new pencils. I was able to find a holder at a dime store which allowed us to sharpen and use the old pencils down to their very end."

1940 to 1948 [2]

In November, 1940, the Gilfillan factory was completely destroyed by a fire, with a loss of $500,000. Although Gilfillan had to set up temporary quarters in nearby buildings, they got back into production within five days. Temporary production was quickly resumed in a building of the Harvard Military Academy

Model 119 Superhetrodyne Console (1940-1941)

Model 5L. 1941-1942 5-tube AC/DC.

at Venice and Western. Margaret Lockhart recalls how cold, damp and drafty those buildings were. As an unbelievable achievement, radios were produced in time for shipment to stores for Christmas. No employees lost even a week's pay as a result of the disaster.

Mr. Joe Miles[10] remembers that Gilfillan turned out 10,000 radios between December 1 and Christmas of 1940 in the Harvard Military Academy buildings. He also recalls a contract to Gilfillan by Sears in the spring of 1941 while production was still in progress at the Harvard Academy. The order was for some 1,000 table model sets. Although Gilfillan completed the order they did not take additional orders because the profit margin of the order was too little. By June 1941 a new streamlined architectural building was built at 1815 Venice Blvd.

Until radio production was stopped in 1942, because of the war, Gilfillan continued to produce a full line of compact table, AC/DC, portable battery and console radio phonograph models. The epitome of the pre-war line was a thirteen tube model 33, with an automatic record changer phonograph, three band short-wave receiver and disk record cutter to allow home recording. One unique pre-war product was "Synchro-Sound." This device allowed home movie buffs to synchronize their movie cameras and projectors to their Gilfillan record cutters. The result was the earliest practical sound motion picture system for the home.

World War II interrupted radio receiver production for several years. Gilfillan's attention was given to GCA radar. The MPN-1 unit has been called the most complicated radar to be produced during WW II — with 705 tubes and weighing twenty-two tons.

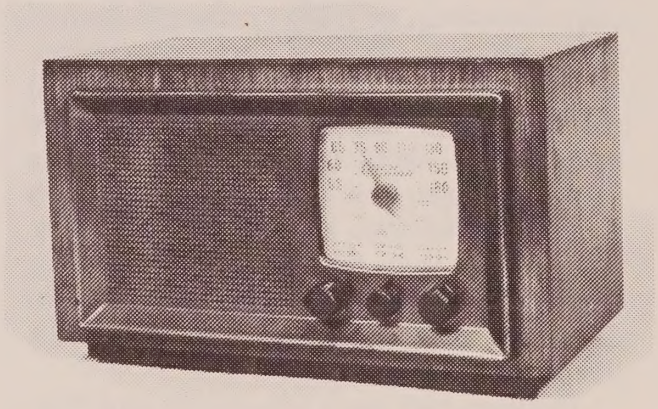
Toward the close of WW II, S. W. Gilfillan resumed planning for the production of radio recievers. The OPA approved Gilfillan's proposed manufacturer, dealer and customer prices ($14.40, $17.67 and $26.78 respectively for a 56A model) for an economical line of five-tube table model AC/DC sets. That radio line was the model 56 series, first sold in 1946. The series included the walnut cabinet model 56B and streamline styled model 56C.

Gilfillan continued to employ circuits provided by RCA and Hazeltine Laboratories. Gilfillan production between 1946 and 1948 included portable battery receivers, pushbutton table radios, radio-phonograph combinations, modern-design consoles and combination television-radio-phonograph receivers.

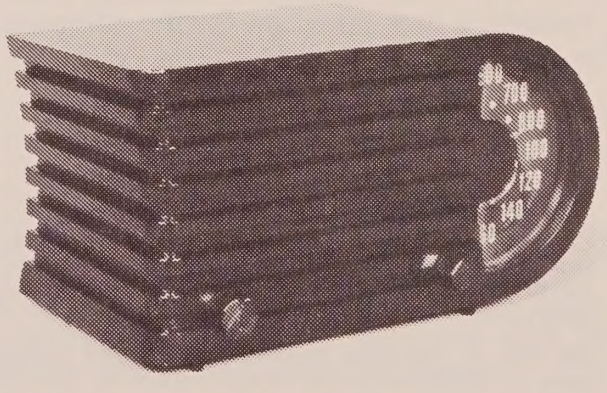
One of the most unique post-war receivers built by Gilfillan used the Fremodyne circuit, developed by Hazeltine. In conjunction with Hazeltine engineers, Wolcott and Woodis developed the Gilfillan AC/DC, AM/FM model 68F receiver which used miniature tubes. The Fremodyne was a super-regenerative-superhetrodyne using slope detection for FM. Only one additional tube, added to a conventional five-tube AM radio provided a complete FM radio. The single tube (12AT7) performed five functions:

1. Superhetrodyne local oscillator
2. Converter/mixer
3. Super-regenerative IF amplifier
4. Converter of FM to AM
5. Detector delivering audio output.

The model 68F Fremodyne was one of the lowest cost ($34) FM receivers built at that time.



68F AM/FM Table Model. 1948 Fremodyne Circuit, 6-tube AD/DC.



58M Table Model. 1948 5-tube AC/DC.

In 1948, shortly before magnetic tape recorders became feasible, Gilfillan introduced two consoles which included wire recording capabilities. Wire recording transports were supplied by Webster-Chicago, with the driving electronics designed by Gilfillan. The model 108-48 included a ten-tube AM/FM radio while the 68-48 was AM only.

With the post-war stability of radar systems confirmed by a large order from the government in 1948, Gilfillan opted to drop its consumer product line. It continued during the 1950's to experiment with color TV just in case it had to resume consumer electronic products.

Conclusion

Intense technological changes were taking place in the two decades between 1920 and 1940. Gilfillan Bros. Inc. was a focal point for many of these changes on the West Coast. Gilfillan turned their molded bakelite parts capabilities of the teens into molded products for radios. This capability grew into completed radios. Neutrodynes and screen-grid tuned radio frequency designs emerged into superhetrodynes. Midget sets were introduced on the West Coast. Contract manufacturing of radio sets maintained the company during the depression. Those turbulent years saw many radio names rise rapidly then fall even more rapidly but Gilfillan Bros. Inc.'s radio business continued throughout the '20's and '30's and was a profitable business. The 1940's were no longer a contracting period for Gilfillan because other manufacturers were obtaining their own RCA licensing agreements.

Gilfillan had been innovative and flexible in merchandising and had helped bring new ideas to the market place in the '20's and '30's. Their interest in GCA and successful contracts for radar systems brought a new direction for the company in the 1940's.

REFERENCES

(1) Mrs. Jay G. Gilfillan, Los Angeles, Calif.

(2) Unpublished document "The Gilfillan Historical Radio-Television Exhibit," assembled by Ed Reitan, ITT Gilfillan Inc. open house held on May 31, 1980.

(3) Mr. A. Jennings Brown, retired, and Chairman of Gilfillan Corp. Board before its sale to ITT. He is the nephew of Jay G. and S. W. Gilfillan.

(4) From the book, "The Early Days of Wheeler and Hazeltine Corporation," by Harold Wheeler, 1982. "Latour Corporation was a company formed to hold the many U.S. patents of the French inventor, Prof. Marius C. A. Latour. In 1925, an 80% interest was acquired by Hazeltine Corp. and later it became a wholly owned subsideriary. Its principal value was as a supplement to Hazeltine's patent portfolio in negotiating a comprehensive royalty agreement with a licensee."

(5) "Radio Collector's Guide, 1921—1932," by Morgan McMahon.

(6) Mr. Ted Phillips, Past President of Gilfillan Bros., Inc., Los Angeles, Calif.

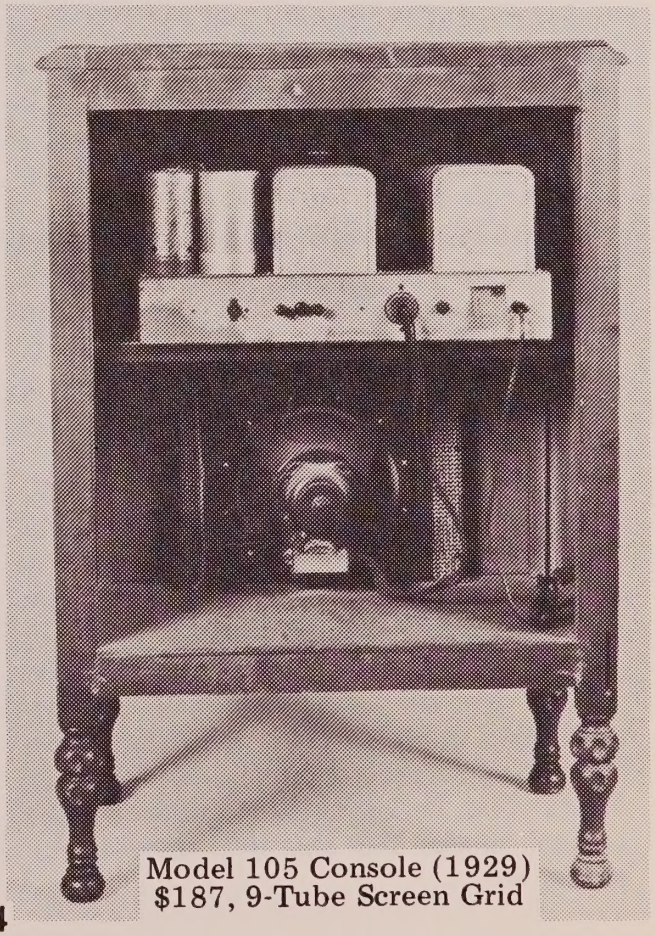
(7) From the book, "Invention and Innovation in the Radio Industry," by W. Rupert Maclaurin, 1949. "The policy that the RCA group adopted in 1927 was to offer licenses to '$100,000 customers' but without quota or price agreements. The royalty rate was fixed at 7½% of the net selling price. The first licenses were for tuned radio frequency receivers only, excluding the much more efficient superhetrodyne set which RCA had recently developed and reserved for itself. By 1928 RCA was forced to change this particular policy .... Nor did the policy of attempting to restrict licenses to '$100,000 customers' last for long. This minimum royalty rate was never actually accessed, but it had the effect of restricting licenses to the larger companies."

(8) Mr. Ralph Lamm, retired, Chief Engineer of Troy Radio in the 1930's, Camarillo, Calif.

(9) Mr. Phil Barr, SCARS member, La Mirada, Calif.

(10) Mr. Joseph H. Miles, retired, Lake San Marcos, Calif. Vice-President of Gilfillan in 1947 and President in 1956.

Photos courtesy ITT Gilfillan Archives



Model 105 Console (1929)
$187, 9-Tube Screen Grid

COLLECTING ANTIQUE LITERATURE ON ELECTRONICS

by Carlos Alberto Fazano (Asasco, SP Brasil)

The history of electronics is so diverse that it raises an interest to collect items like old time radio programs, radio sets, tubes, memorabilia on radio stars, etc. One of its most interesting and helpful aspects is surely the collection of antique literature on the subject.

VERLAG VON FERDINAND ENKE IN STUTTGART.

1913 erschien:

Lehrbuch

der

Drahtlosen Telegraphie

Von

Dr. J. Zenneck,

Professor der Physik an der Technischen Hochschule in Danzig-Langfuhr.

Zweite, vollständig umgearbeitete und vermehrte Auflage des Leitfadens.

Mit 470 Textabbildungen und zahlreichen Tabellen.
Lex. 8°. 1913. Geheftet M. 15.— In Leinwand gebunden M. 16.60.

Foreign language books are of value..

Antique literature means magazines, leaflets, operating manuals and books edited by the manufacturers which can be found on flea markets, specialized bookstores as well as with some luck in Aunt Mary's attic. Its acquisition is also quite peculiar since you can buy a worn out item from an auction or just receive a well preserved copy of an early book about radio construction as a gift from a friend. Similar to other aspects of this field, the collecting of antique literature also includes specific details such as choice, classification and even restoration, if necessary, of its so many available types. This of course is not the scope of this article.

However, considering the matter as a whole, it is important to bear in mind that the most rewarding aspect is the information transmitted by the vanished printed pages that brings us close to the scientific and technological status of that period.

Resuming, and as a photo is worth a thousand words, the following pictorial set illustrates some very interesting and helpful data obtained from antique books on electricity and electronics.

WIRELESS TELEGRAPHY

A HANDBOOK FOR THE USE OF OPERATORS AND STUDENTS

BY

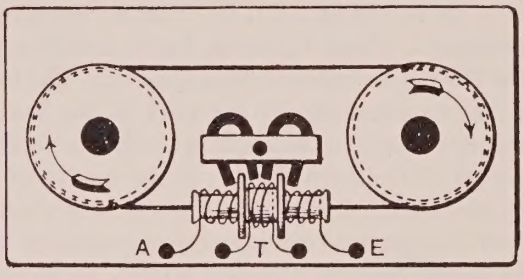
W. H. MARCHANT

Author of "Radio-Telegraphist's Guide"

Early literature makes good reading..

FIG. 1.—WAVE MOTION IN WATER.

The reader can find fundamentals not found elsewhere.....



Explanation of difficult circuits can be instructional.....

WIRELESS TELEGRAPHY

AND

TELEPHONY

POPULARLY EXPLAINED

BY

WALTER W. MASSIE

AND

CHARLES R. UNDERHILL

WITH SPECIAL ARTICLE BY NIKOLA TESLA

NEW YORK

D. VAN NOSTRAND COMPANY

23 MURRAY AND 27 WARREN STREETS

1908

Some early books are highly prized when authored by well-known pioneers such as Massie and introduction by Tesla.

JAGADIS CHUNDER BOSE AND HIS GALENA DETECTOR

by William E. Denk, W3IGU

In 1874, twelve years before Dr. Heinrich Hertz had demonstrated the generation, transmission, reception and measurement of Hertzian waves, another German, Karl Ferdinand Braun had shown that galena and other metallic sulphides offered higher resistance to the passage of an electrical current flowing through them in one direction than in the other. Why then, one may wonder, did the infant art of radio reception have to struggle with such inferior detectors as the coherer (1890) before the introduction in 1906 of the crystal detectors of H. Dunwoody (U.S. Patent 837,616, filed March 23, 1906) and G. W. Pickard (U.S. Patent 836,531 and otheres, the first of which was filed August 30, 1906)? Perhaps experimenters plunged too quickly into their laboratories before doing a thorough job of library research.

One area of detector development that, in hindsight, received inadequate attention in the period between Hertz and Messrs Dunwoody and Pickard, lay in the work of Sir Jagadis Chunder Bose (1858-1937), M.A., D.Sc., LL.D., F.R.S.; Professor, Presidency College, Calcutta, India; and Director of the Bose Research Institute, Calcutta. Dr. Bose was known primarily for his work in the field of plant physiology, but was among the first to build on the work of Heinrich Hertz. In the course of his early researches, Bose generated waves as short as 0.6cm! His work on electromagnetic radiation was published by the Royal Society in1895, on the basis of which the University of London conferred on Bose its Doctorate of Science. He rates a full two pages in Dunlap's "*Radio's 100 Men of Science*".

In his researches, Dr. Bose was hampered by the inadequacies of the then commonly used coherer detector. His development of a more sensitive, more instantly-responsive detector is described in his U.S. Patent No. 755,840, "*Detectors for Electrical Disturbances*", filed September 30, 1901, and issued March 29, 1904. Claim 2 of that patent deserves attention: "*In and for a coherer or detector of electrical disturbances, Hertzian waves, light waves or other radiations, galena as a sensitive substance.*" Does it follow that an Indian, Dr. Bose, is the inventor of the crystal detector, and not Messrs Dunwoody and Pickard? This writer is not sure.

Details of the Bose detector are shown in the patent drawing reproduced here in its entirety. The Figure 1 embodiment, resembling an eyeball, with its lens 13, was for use as a receiver and detector of ordinary light waves. Light focused on the detector elements 4, 5 (the artificial retina) caused a change in the current registered by the battery, galvanometer circuit 18, 19. For the detector elements, Dr. Bose preferred galena, but he also mentions tellurium, magnesium, and halogenated metals – for example lead and tin; potassium and allotropic silver. He makes no mention of rectification; instead he refers to the fact that in his detectors the relation between a continuously increasing e.m.f. and the resulting current is not a straight line but rather a curve which is either concave or convex to the axis of e.m.f. We would say that the e/i characteristic is non-linear. But Bose's emphasis is on resistance change – not rectification.

Detector details are shown in Figures 2 and 3. One galena element 4 is a truncated cylinder, while the other, 5, is a cylinder having one end tapered to a point. Spring 6, insulated pivot 3, and micrometer screw 7 provide means for "adjusting the pressure" between the galena elements "with great delicacy". The patent does **not** suggest that the point be moved across the face of the galena element 4 to find a more sensitive spot.

Of interest to our inquiry, is the statement (page 3, column 2 of the patent) that "*By removing the metallic and wooden casing and lens the instrument may be used as a detector or so-called 'coherer' for wireless or other telegraphy*". Contrasting his apparatus with the older coherer, Bose notes that his detector "*is self-recovering ... that is to say, that the distortion produced in the sensitive contacts by a wave or radiation caused to impinge thereon is automatically removed upon the cessation of the wave ...* ".

The patent also states that "*Instead of a galvanometer, other suitable electric indicating or recording apparatus may be used*". Dr. Bose adds that he may control the responsiveness of his detector materials by annealing or by mechanical treatment, by heat, by changes in pressure, or by subjecting his substances to vapors or gases (e.g., ammonia vapor or carbonic acid gases). Is the latter a step toward the "doping" of semiconductor crystals?

Claim 3 is also of interest, in that it is not specifically limited to galena as its "*sensitive substance*", and in that it neatly summarizes what Bose considered an important aspect of his invention. Claim 3 calls for "A ... detector of ... Hertzian waves ..., comprising contacting pieces of sensitive substance having a characteristic curve (giving the relation between an increasing impressed electromotive force and the resultant current passing through the sensitive substance), which is not straight but is either convex or concave to the axis of electromotive force and in which the return curve with a decreasing electromotive force when taken slowly approximately coincides with the former curve, in combination with means for adjusting the force of contact

No. 755,840. PATENTED MAR. 29, 1904

J. C. BOSE.

DETECTOR FOR ELECTRICAL DISTURBANCES.

APPLICATION FILED SEPT. 30, 1901.

NO MODEL.

Fig. 1.

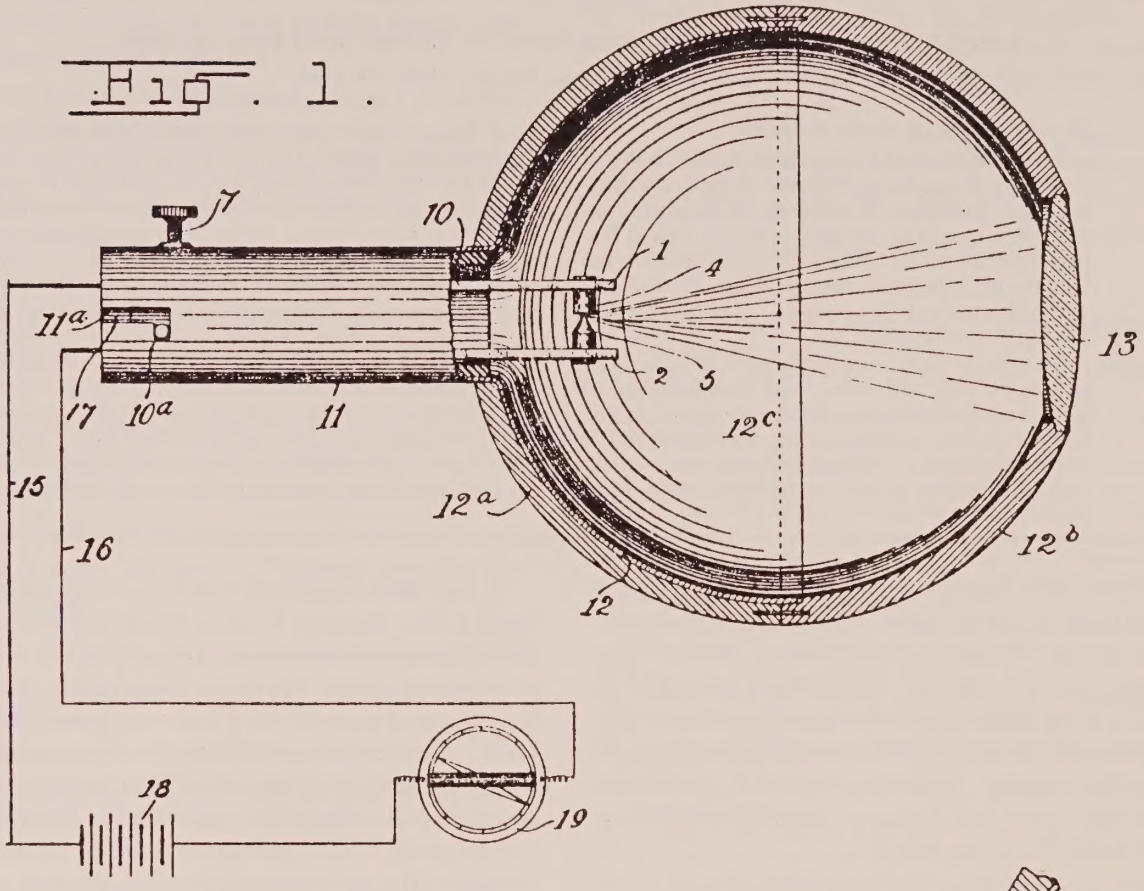


Fig. 3.

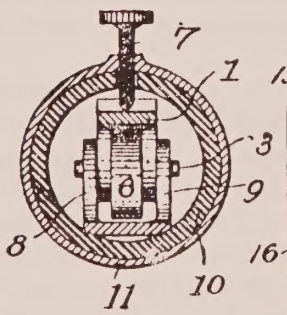
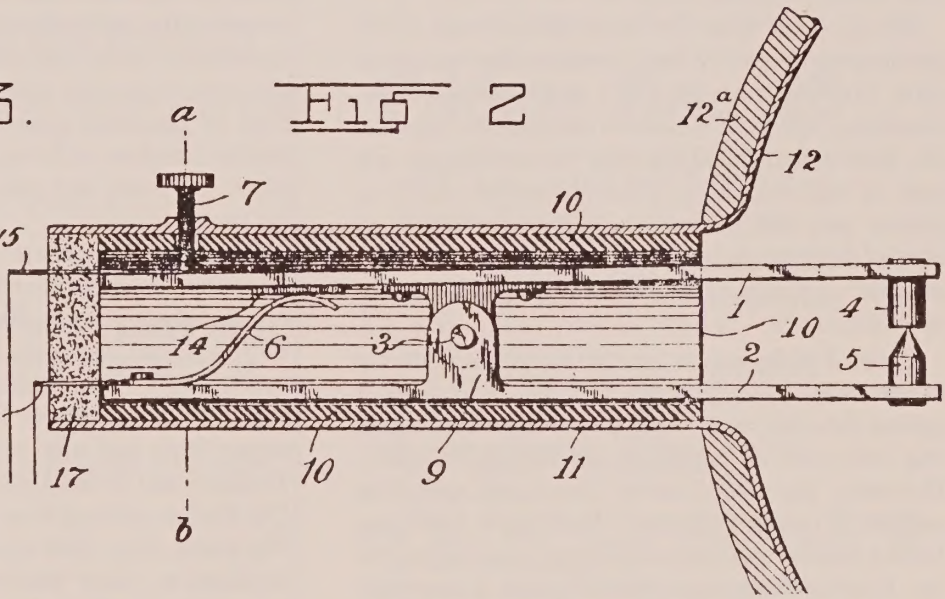


Fig 2



between the contacting pieces".

It is disappointing that in referring to galena the Bose patent is silent as to the form of galena with which he was dealing. Was it amorphous lead sulfide, or was it crystalline? Fortunately for our curiosity today (but not in time to correct this deficiency in patent disclosure), Professor Patrick Geddes, in his biography, "*The Life and Work of Sir Jagadis C. Bose*" (1920), in referring to the apparatus described in the Bose patent, states on page 85, "when we open the little globe of the electric eye ... this amazing super-retina turns out to be made but of two tiny crystals of galena, adjusted to contact sensitiveness. That this common lead ore, this heavy sulphide, should... have fullest sensitiveness to all ether-waves ... is worth reflecting on".

[Continued on next page]

UNITED STATES PATENT OFFICE.

JAGADIS CHUNDER BOSE, OF CALCUTTA, INDIA, ASSIGNOR OF ONE-HALF TO SARA CHAPMAN BULL, OF CAMBRIDGE, MASSACHUSETTS.

DETECTOR FOR ELECTRICAL DISTURBANCES.

SPECIFICATION forming part of Letters Patent No. 755,840, dated March 29, 1904.

Application filed September 30, 1901. Serial No. 77,028. (No model.)

To all whom it may concern:

Be it known that I, JAGADIS CHUNDER BOSE, a subject of the King of Great Britain and Emperor of India, and a resident of Calcutta, India, have invented certain new and useful Improvements in or Relating to Detectors for Electrical Disturbances or other Radiations and in Electrical Resistances, of which the following is a specification.

This invention has reference to detectors and so-called "coherers" for the reception of electrical disturbances, Hertzian waves, light-waves, and other radiations; and its object is to further improve the sensitiveness and quickness of response of devices of the kind in question.

According to my theory, upon which the invention is based, the changes produced on or in the sensitive substance of a coherer or detector by electrical disturbances, Hertzian waves, light-waves, and other radiations are due to molecular distortion. In order to obtain the best results with a detector or coherer, it is necessary that this distortion shall be removed before the detector or coherer receives fresh radiations—as, for example, the signals in wireless or other telegraphy.

In order to restore the quickness of response of coherers and detectors in actual practice, it is usual to resort to tapping contrivances; but this expedient besides being crude in concep-

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What did a famous contemporary of Professor Bose think of this detector? In the chapter on detection in his "*Principles of Electric Wave Telegraphy and Telephony*", 2nd Edition, page 442, J. A. Fleming, referring to the investigations of Dr. Bose on the resistance variations of certain materials when subject to electric radiation, concluded that they "have not, however, much increased our real insight into the matter".

We do know what Dr. Bose himself said of his galena detector, more than a decade after he patented it. On November 30, 1917, in his address in dedication of the Bose Research Institute in Calcutta, Dr. Bose stated simply that his "*invention of a new type of self recovering electric receiver made of galena was the forerunner of the application of crystal detectors for extending the range of wireless signals*". (Pages 236-7 of the Geddes biography, op. cit.)

Claim 2 of the patent (quoted earlier) is readable in its terms on any radio receiver employing a galena detector, and it might well have dominated this field until its expiration on March 29, 1921. However, the record shows that it was never the subject of patent litigation. Thus there has never been a judicial determination of its scope and validity. Had the Bose patent been litigated, it is certainly possible that the patent would have been infringed by any receiver having a galena crystal detector, just as claims in the Fleming diode patent were adjudged to cover the DeForest and other triodes. But, irrespective of what might have been, historians should be aware of the Bose work, and his patent, in the progress of the art from the work of Karl Ferdinand Braun to that of Messrs Dunwoody and Pickard.

It has been suggested that the use of galena on galena (ie., element 4 on 5) might preclude such rectification as occurs when employing a cats-whisker on galena. However, the characteristics of galena are known to vary over the galena surface and it seems quite possible that Bose's arrangement might exhibit rectifying action depending upon the selected contacting points; just as two silicon diodes connected in series could serve to rectify alternating current if the connection between them were anode to cathode, rather than anode to anode. This leads the writer to propose that one of our readers obtain a copy of the Bose patent, duplicate the essential crystal structure of Bose (perhaps using phones in place of battery and galvanometer) and report on his results.

When the Bose patent first came to this writer's attention, his curiosity was aroused by the patent's masthead notation that Bose was "*Assignor of one-half to Sara Chapman Bull of Cambridge, Massachusetts*". Fortunately, the Geddes biography (op. cit.) identifies Mrs. Bull as an American friend whom Bose had met in India (1899) and later in England and in the United States. Her husband, Ole Bull, is referred to as "a great Norse violinist". No doubt, Mrs. Bull urged Bose to file his patent application, likely paid all the costs thereof, and Bose undoubtedly insisted on assigning Mrs. Bull a half interest in his patent.

Finally, the writer acknowledges the support and most helpful comments of several authorities in the field to whom he had submitted copies of the Bose patent, namely: Professor Hugh G. J. Aitken, W1PN; Dr. J. Daniel Bode; Bob Morris, W2LV; Dr. Desmond P. C. Thackeray (England); Mrs. Gerald F. J. Tyne; and Kaye Weedon (Norway).

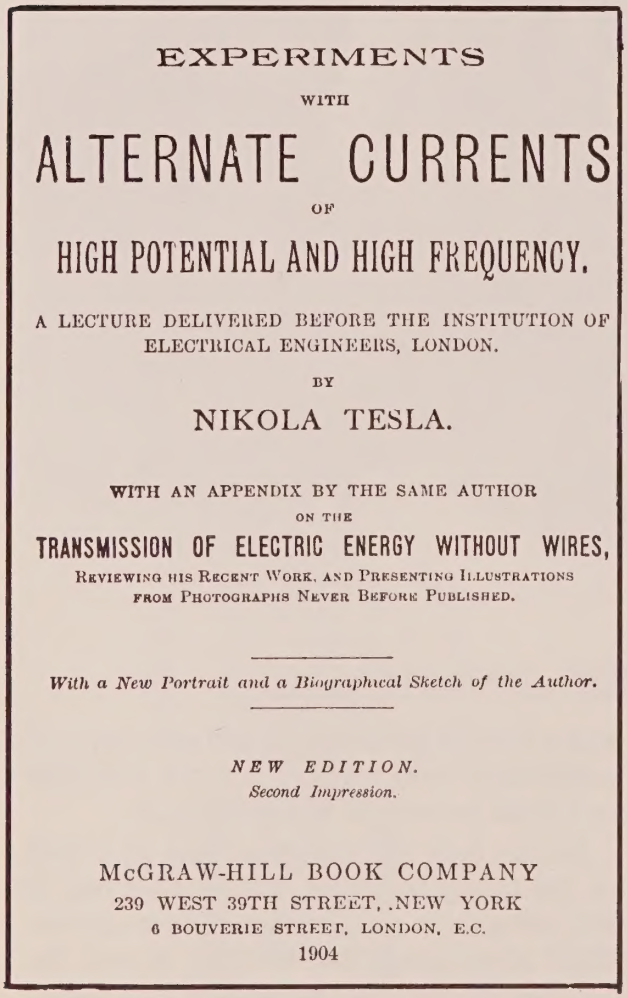
1986 IS TESLA YEAR

Each year the Association selects a theme for the Conference. 1984 was Marconi, Gernsback in '85 and now Nikola Tesla in '86. Members are encouraged to enter material of any description relating to Tesla and his work in the **Old Equipment Contest.**

Since Tesla did not manufacture a product, most entries will be examples or replicas of his work. An example could be one of the few books he authored. Pictured is the title page of such a book.

A high point of the Conference will be a brief discussion of the history and philosophy of Nikola Tesla by H. G. Wells, science editor and science fiction writer. This will be followed by a demonstration and explanation of resonance transformers (Tesla coils) by Jim Hardesty, N2DRT, electrical experimenter from Ithaca, New York.

Don't miss this one ! Register now for the Conference.



EXPERIMENTS

WITH

ALTERNATE CURRENTS

OF

HIGH POTENTIAL AND HIGH FREQUENCY.

A LECTURE DELIVERED BEFORE THE INSTITUTION OF ELECTRICAL ENGINEERS, LONDON.

BY

NIKOLA TESLA.

WITH AN APPENDIX BY THE SAME AUTHOR

ON THE

TRANSMISSION OF ELECTRIC ENERGY WITHOUT WIRES,

REVIEWING HIS RECENT WORK, AND PRESENTING ILLUSTRATIONS FROM PHOTOGRAPHS NEVER BEFORE PUBLISHED.

With a New Portrait and a Biographical Sketch of the Author.

NEW EDITION.
Second Impression.

McGRAW-HILL BOOK COMPANY
239 WEST 39TH STREET, NEW YORK
6 BOUVERIE STREET, LONDON, E.C.
1904

Title page from rare 1904 book written by Nikola Tesla.

To OTB Editor:

I am enclosing programs from two local (Sidney, Australia) broadcast stations nearly 50 years ago which may be of interest to AWA members (Dec.23,1927). Note we still used a number in our call sign with "2" designated for New South Wales. These were our two most powerful stations each rated at 5000 watts. I believe your stations gave Naval Observatory Time whilst we had Big Ben and the G.P.O. Clock.

--Montague Lewis

2BL, SYDNEY.

Wave Length, 353 Metres.

MORNING SESSION.

10.30 a.m.—G.P.O. Clock and Chimes; Musical Programme from Studio.
10.40 a.m.—News from the "Daily Telegraph Pictorial."
10.50 a.m.—Musical Programme from the Studio.
11.0 a.m.—G.P.O. Clock and Chimes; Announcements.
11.5 a.m.—Musical Programme from the Studio.
11.15 a.m.—Women's Session; Talk on "Motoring," by Miss Gwen Varley, Broadcasters' Women's Sports Authority. Social Notes, Replies to Correspondents by Mrs. Jordan. Talk on "A last word about Xmas Cookery," by Mrs. Jordan.
12 noon.—G.P.O. Clock and Chimes; Special Ocean Forecast and Weather Report.
12.3 p.m.—Musical Programme from the Studio.
12.8 p.m.—Information, Mails, Shipping and Port Directory.
12.11 p.m.—Boats in Call by Wireless.
12.13 p.m.—Fruit Market Report.
12.15 p.m.—Vegetable Market Report.

Friday, Dec. 23

2FC, SYDNEY.

Wave Length, 442 Metres.

AFTERNOON SESSION.

3 p.m.—"Big Ben" and announcements.
3.3 p.m.—The "Radio Triad" (Leader, Mr. Ewart Chapple).
3.13 p.m.—Fosse Brakell, contralto: "None, but the Lonely Heart" (Theowsky).
3.17 p.m.—A short talk.
3.25 p.m.—Jeanette Rooney, soprano: "The Carpet" (Sanderson).
3.29 p.m.—Kathleen Horne, soprano: "When You and I Were Seventeen' '(Rosoff).
3.33 p.m.—The "Radio Triad" (Leader, Mr. Ewart Chapple).
3.43 p.m.—Muriel Watt, contralto: "Here in the Quiet Hills" (Carne).
3.47 p.m.—Studio records.
3.55 p.m.—Fosse Brakell, contralto:

The TELEVISION RECEIVER

We're sorry-- but there will be no Television Receiver column this month since the photographs for the article were not processed in time.

Editor: Jack Davis

THE VACUUM TUBE
Editor: Bro. Patrick Dowd, F.S.C., W2GK

THE SCHICKERLING TUBE

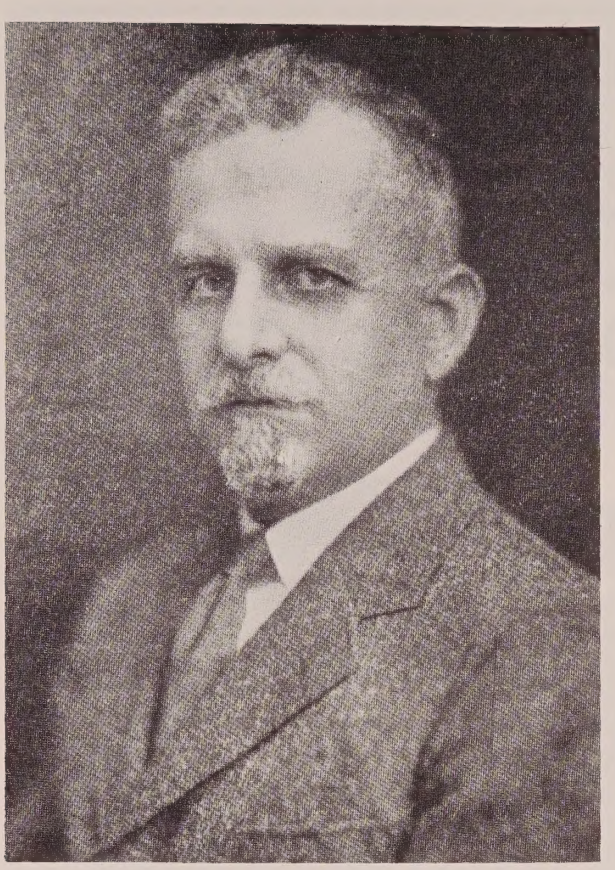
by Alan Douglas

The Schickerling Types S81000, S4000 and SX4000.

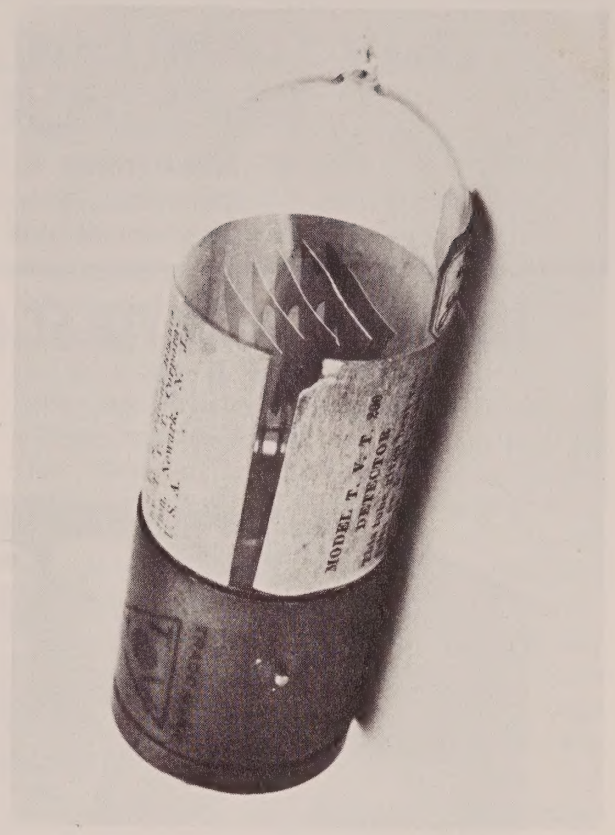
Did these Schickerling tubes ever work? The triangular plates were an attempt to get around the grid patent; while this fanciful ad shows all plates brought out to separate pins, in the TVT-200 three of the plates are tied together as the "*plate*" while the other two became the "*grid*".

But does it work? I tried it in a Weston 686 tube analyzer and at best could get only a mutual conductance of 50 micromhos, and that may have been a false reading. More to the point, I ran it in a Radak R-4, in comparison with a UV200; while the UV200 worked fine, I could barely hear anything with the TVT-200 and could get no hint of regeneration.

Having built his reputation (such as it was) on the triangular plates, Schickerling had to keep using them, even in tubes of more conventional construction, and so came up with the "*stabilizing element*" on which he got a patent. It's hard to imagine why he bothered, since Schickerling tubes are so heavily gettered that their internal elements are nearly invisible to



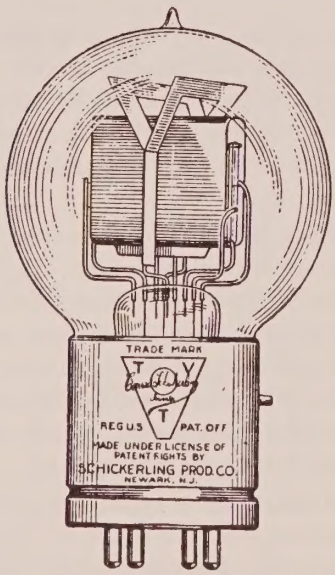
Rare photograph of
Conrad Schickerling



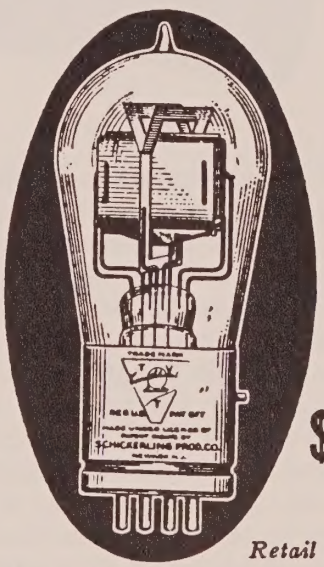
Schickerling Type T.V.T. 200
Note inner plate structure.

the buyer. However, he did, and even the later Bakelite-based models used this extra element. What his SX201A looked like, I do not know – this box is empty – but the SX227 was conventional.

Schickerling made a gaseous rectifier too, which hit the market in August 1925, several months before the Raytheon B. But it didn't last long, that is to say it wasn't advertised for long, though it probably didn't operate for very long either. Schickerling also patented a rectifier, with a more elaborate construction than the Z-50 actually marketed. The Z-50 had a lengthy technical write up in the September 1925 *Radio News*.



MODEL S 700—POWER TUBE OSCILLATOR



$3

Retail Price

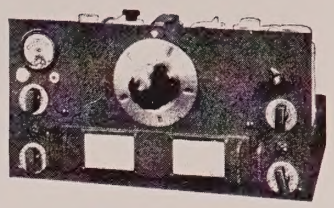
Model S-4000
5 volt, Standard Base, ¼ amp., Detector-Amplifier with full, noise-free, distortionless volume.

SCHICKERLING PRODUCTS

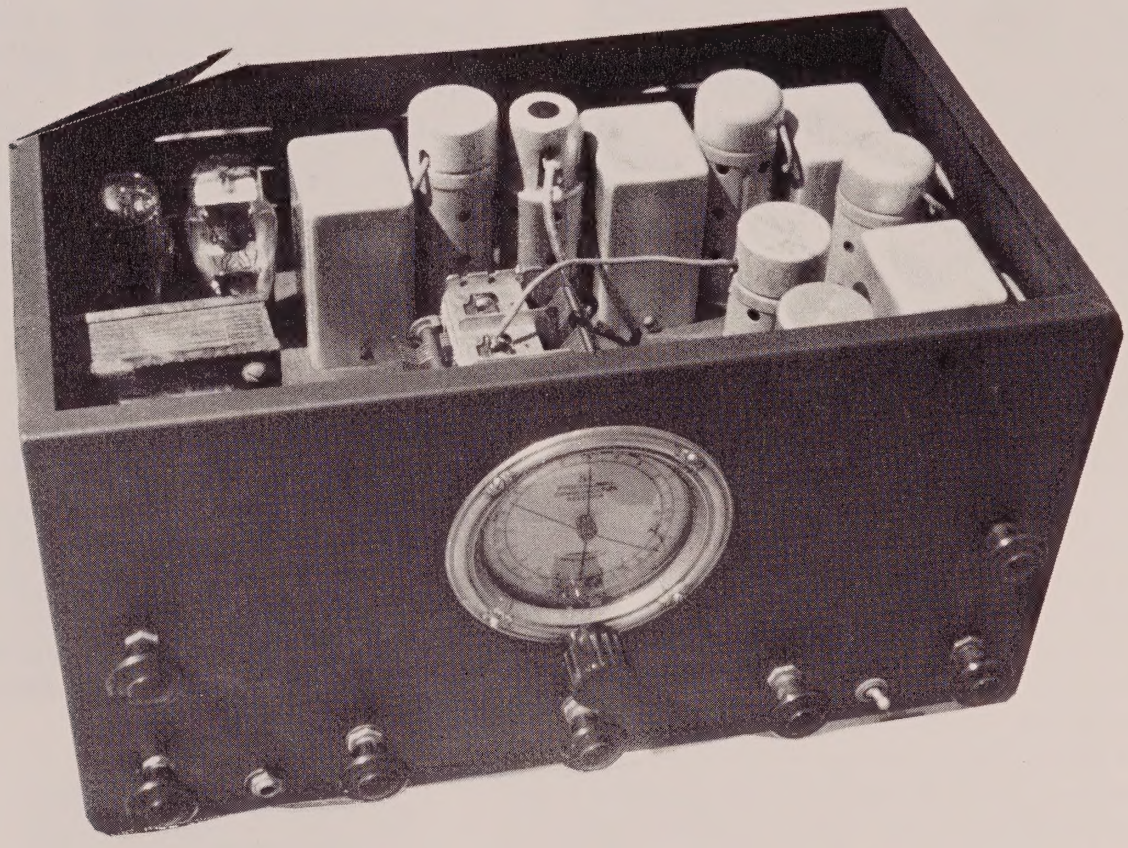
Executive Offices and Factory:
401-407 Mulberry Street, Newark, N. J.

The COMMUNICATION RECEIVER

Editor: Bill Fizette, K3ZJW
R.D. 1, Box 55, Henryville, Pennsylvania 18332
All correspondence requires SASE for reply



THE McMURDO SILVER 5C COMMUNICATIONS RECEIVER



At the AWA Communications Receiver Auction in 1985, a rather unnoteworthy receiver of the SWL variety, which had remained unsold in the flea market, came under the gavel. Because of its immediate lack of identity and relatively poor condition, coupled with only little interest and a rather high minimum, it still brought no bids. With the plain black cabinet and no panel markings it resembled a kit and hardly warranted a second look. Fortunately, W4OTN recognized it as one of the rarely seen receivers marketed by McMurdo Silver during the early 1930's, and was able to purchase it after the auction. It is now restored and in working condition.

This story began in March 1933, when Silver introduced the "Ham Super", designed around a unique plug-in coil system (QST February 1933). Unfortunately, it ran head on into the National FB 7, also announced the same month. By September, Silver was promoting the 5A, a totally different short wave receiver without plug-in coils. This was followed shortly by the 5B, which the ads proclaimed was used exclusively at W9USA at the 1933-34 Chicago World's Fair, and in due course, the 5C and the 5D.

The McMurdo Silver 5C Profession Communications Receiver, as it was termed, was promoted and sold by the Wilcox Sales Company of Chicago. The receiver identification is contained on the four inch airplane type dial, a style which was popular at the time on sets with short wave bands being sold to the general public; there are no control nameplates or other identification on the receiver.

The round main dial is fitted with a two-speed tuning mechanism with two pointers. The readout is only approximate, with resettability typical of the style, i.e., relatively poor. While in the past this characteristic had not been considered too impor-

tant for shortwave gear, forward thinkers were then in the process of designing new dials for commercial and amateur use with excellent readouts, as witness the HRO PW dial, soon to appear. The three tuning ranges, covering the frequencies from 1.5 to 23 mc, are color coded on the dial and on the bandswitch. There is no broadcast band on the 5C.

The receiver is housed in a black crackle finish metal cabinet, 17" x 11" x 9". Components for the most part are those used in good quality BC receivers of the day, with perhaps some cost cutting. As an example, the original filter condensers were of the dry electrolytic cardboard type which were cheap and easy to mount under the chassis, in contrast to the aluminum cans used by Hammarlund and National. Similarly, the tube sockets were phenolic, as opposed to the Isolantite used by the other two in the oscillator, RF, and IF stages. Although a critical eye might pick up points such as these, the receiver when new probably worked just as well as if the more expensive components had been used. On the other hand, the IF transformers in the 5C used air tuned trimmer capacitors, considered a mark of quality in those days.

The RF and OSC coils and associated bandswitch were well made and contained in a three section compartment in the bottom of the chassis. The tuning capacitor is interesting in that it is a composite, strongly resembling those later used by Hallicrafters; both the high-capacity general coverage/bandset capacitor and the low-capacity/bandspread unit are mounted on the same frame. By pulling the tuning knob out from the panel, a string drive to the band-spread capacitor is engaged, while with the knob pushed in a spring clutch engages the GC dial.

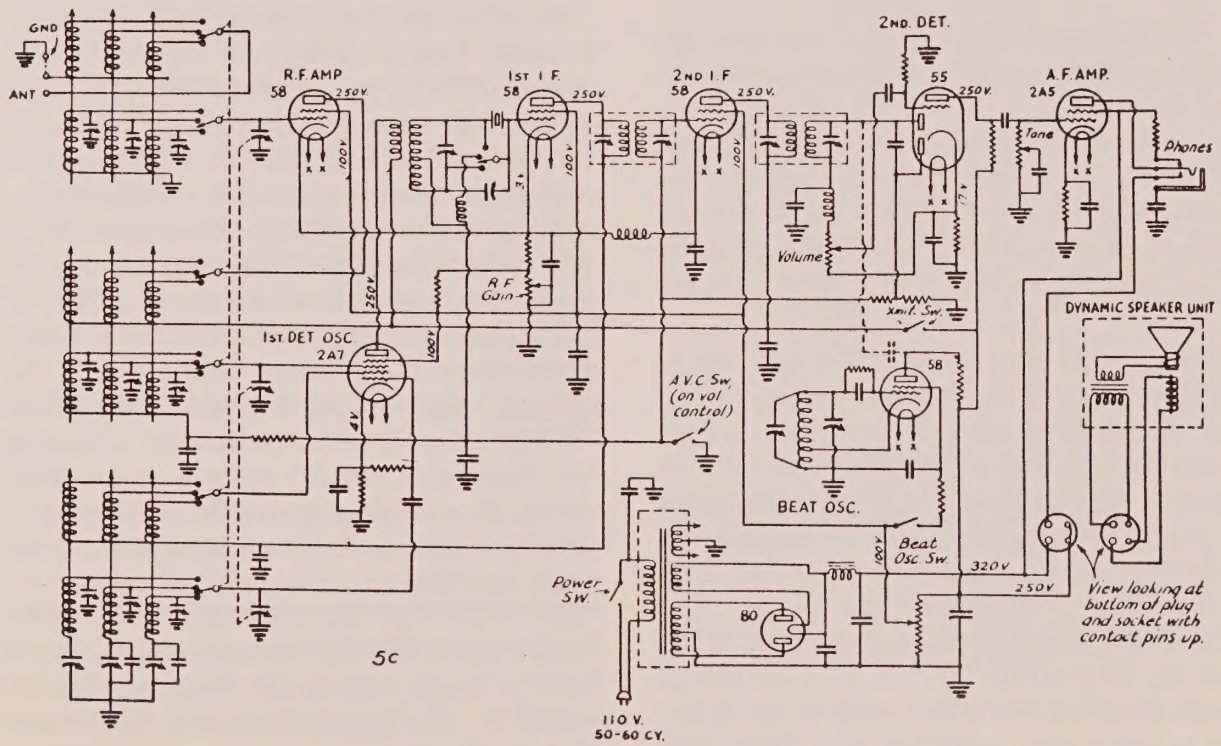
The electrical circuit was reviewed in QST for May, 1935. A 58 RF amplifier is followed by a 2A7 first detector/oscillator and a variable bandwidth crystal filter with a three section switch for series, parallel, or out-of-circuit modes. The two 58 IF stages at 465 kc are in turn followed by a 55 second detector/first audio/AVC stage which is resistance coupled to the 2A5 audio output.

Len followed the usual restoration procedures. After a good look-see and a general cleanup, he replaced the power supply filters and verified that he had B+ voltage at the proper level. The original receiver used wire-wound cathode resistors, and most of these were found open, probably due to corrosion. Replacing these brought the set to life. He concluded with voltage checks and a general alignment. The audio fidelity was noted to be quite good, perhaps better today than in the 30's, probably due to advances in broadcasting and audio techniques.

The original Jensen dynamic speaker had long since vanished, but a suitable replacement which worked well was found in an old Philco. A rough measurement of receiver sensitivity estimated it to be no worse than 2 microvolts.

The promotion of the 5C receiver was minimal and short lived. While the Wilcox Sales Company billed it as the "*Famous 5C Single Signal Super*", they did not use the name "*PROFESSIONAL COMMUNICATION RECEIVER*" which appeared so prominently on the dial, possibly because they felt the only claim the receiver had to being professional was that it was in a metal cabinet, had many unmarked knobs, and required an experienced radio operator at the controls. In all fairness, however, in the hands of a skilled person the 5C

(Continued on next page.)



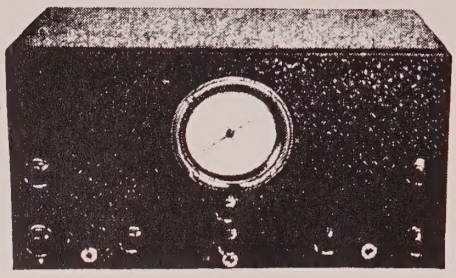
probably worked as well or perhaps even better than the FB 7, especially since the latter did not have an RF stage/preselector. All of the circuits and controls required of a good communications receiver were indeed present.

Silver was a busy person; at the time he was promoting the 5A, he was also marketing the Masterpiece II all-wave voice receiver, with emphasis on audio fidelity. Another receiver being sold was named the *WORLD-WIDE 9*, with a BC band and two short wave bands. The tube lineup and circuit were almost identical to the 5C.

Delaware Radio Sales also sold the 5C, but we have found none of their ads which pictured the receiver. The emphasis seemed to be on Hammarlund and National. With minimal promotion and without an effective dealer organization, beset with competition and constantly changing technology, and with the depression still going strong, Silver could not have sold many of each receiver model, thus making them today rather rare in comparison to those of the more well-known manufacturers with larger production runs and market share. One is left with the strong impression that Silver never really broke into the short-wave communications field on a continuing or meaningful basis. Price information has not been found, another indication of poor marketing strategy.

Other less-popular short wave sets of the era included those manufactured by Patterson, Ross, and Breting. If readers have any of these receivers, as well as others by McMurdo Silver, we would welcome information relative to design, restoration, performance, and general overall impressions.

McMurdo-Silver's famous 5C
SINGLE SIGNAL SUPER



"In my opinion, McMurdo-Silver's 5C Professional Single Signal Super is away out in front of all competition. It's the choice of many who have tried them all. I offer the 5C on the most interesting easy TIME PAYMENTS you ever heard of. Write me at once for complete technical details of the 5C . . . and for particulars of my time payment offer for Chicago Amateurs. Hurry!"

WILCOX RADIO SALES

506 S. Wabash Ave. *Phone Webster 4101* Chicago, U.S.A.

AWA member Leonard Nole, W4OTN, of Alexandria, Virginia, by his purchase and restoration of a McMurdo Silver 5C receiver, has opened an interesting and not too well known chapter of the turbulent and often chaotic radio market place of the early 1930's. Len, who was first licensed as W2FKL in 1933, worked as a radio repairman for several years before beginning a 30 year career in US Navy communications. He has thoughtfully provided most of the information and some of the text for this review. K3ZJW

REMOVING DRIFT FROM THE HRO

A classic problem with HRO receivers is the tendency for many of them to drift excessively, and the experience of chasing a signal across the dial can be frustrating. Ken Gardner, W2BGN, was faced with this situation and wanted to use the receiver on the air in the OT contest. He resolved the problem to his satisfaction and was kind enough to send in the details.

Paul, W3VVS, pinpointed the problem as being in the oscillator trimmer capacitors inside the oscillator can (the far right can when facing the receiver) in the plug-in coil tray. He suggests taking the unit apart and dosing the capacitor liberally with contact cleaner and working it back and forth at the same time, after first making careful note of the setting. This will remove the accumulated corrosion in the bearing, the source of the drift. Ken, not being a purist about his particular receiver, and wanting to make sure, went one step further and borrowing an old technique, soldered a piece of flexible braid around the bearing on each capacitor. He reports the receiver drift is now to a useable level.

DATING THE EARLY HRO

An AWA member, Charles P. Fisher of 161 Belknap Road, Framingham Centre, Massachusetts 01701, has initiated a project with the objective of more precisely dating the many versions of the HRO receiver, with emphasis on the early production models which employed the plug-in crystal filter. Since some of the very early models (late 1934 to early 1935) are rarely seen, it may be of interest to collectors and students of the HRO phenomenon to determine where a particular unit fits into the scheme. Many of the distinctions are subtle and can escape a casual inspection. A note to Mr. Fisher with a SASE will bring information on how to evaluate your HRO. When enough data have been assembled, the results will be made available to participants.

IDENTIFICATION and VALUE

Editor: Lauren Peckham
Ormiston Road, Breesport, NY 14816
All correspondence requires SASE for reply

We've had numerous requests for a column of this type. Our volunteer editor is well qualified to identify and evaluate historical artifacts. He will cover a wide range of material starting with tubes. -- Editor

IDENTIFICATION AND VALUE OF DE FOREST TUBES

Over the years I have often been asked how the value of a rare or scarce vacuum tube can be determined. Of course the easy answer is "*what ever it's worth to the other fellow*". However, the real story is why a particular sample is desired.

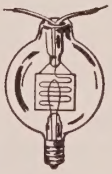
At AWA meetings I am constantly asked to identify early tubular tubes with no visible markings. The chances are good that the item in question will turn out to be an AudioTron manufactured by E. T. Cunningham. But every once in a while there is a lucky fellow who asks about the **DF** stamped on the cylindrical plate. What I am viewing is a type T made by De Forest. Few samples have survived, so this fact plus the magic of the De Forest name makes this tube very interesting.

As De Forest tubes seem to excite many collectors and historians, this is a good time to mention a few other examples. The type CF 185 has appeared in the flea market area at Canandaigua most every year. And once again I am invited to peek into a seller's trunk where the tube in question is always carefully packed separately, never placed with the 199 or 201 types!

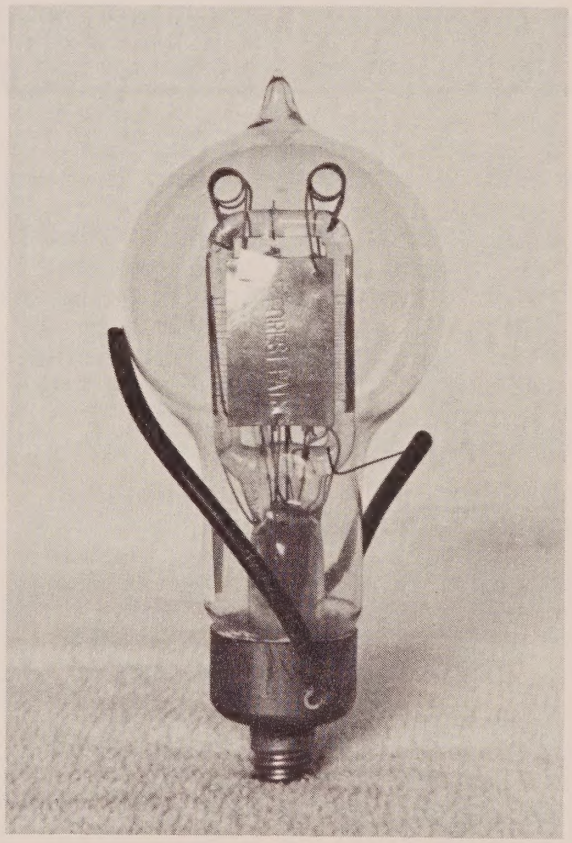
The unusual feature of this tube is a special 3-pin base which was made for use by the Navy in the type CF-122 Audion Control Box. Although many tubes must have been made, few have survived compared with the VT-21 made for the Signal Corps. See pages 122 and 123 of Tyne's Saga for more information.

Here is a list of the "*most wanted*" types made by De Forest. It should be noted that these tubes have good filaments and spherical audions have leads.

Spherical audion with single plate & grid $250.00
Spherical audion with double plate & grid $225.00
Singer oscillion (early type with candelabra base) $220.00
Singer oscillion (later type with shaw base) $175.00
CF 185 (special 3-pin base) $175.00
Type T (tubular, double-ended, DF stamped on plate) $150.00
Type H (transmitting) $115.00



Single plate DeForest spherical Audion



Early version of DeForest Oscillion with candelbra base.

HISTORICAL ARTIFACTS

OLD TIME ADS are FREE to members interested in collecting and restoring early radio equipment for personal use.

RULES FOR ADS:

1. Only ONE per issue per member. Send SASE for acknowledgement.
2. Material must be over 25 years old and related to electronic communication.
3. Give full name, address and zip.
4. AWA will not repeat ads. Repeats require another notice.
5. The Association is not responsible for ANY transaction.
6. AWA retains the right to reduce size of ad if over SEVEN (7) lines.
7. AWA does not accept commercial advertising.
8. Deadline for ads:

FEBRUARY issue--DECEMBER 10
MAY issue ------MARCH 10
AUGUST issue----JUNE 10
NOVEMBER issue--SEPTEMBER 10

Ads received after the above dates will be discarded. Mail ALL ads to:

RICHARD RANSLEY
17 SHERIDAN ST.,AUBURN,NY 13021

(Do NOT send ads to Headquarters.)

WANTED

--1919-22 Radio Amateur News and Radio News, DeForest BC-14 lid.buzzer,name-plate,detector(or junker set),parts for DeForest unit panel set,Radiola Senior box and label,transformers for Westing-house DA,Freed Eisemann NR-6 and Grebe CR-9 xfmrs also. Marc Gottlieb, 931 Olive, Menlo Park,CA 94025

--TV's pre-1960. Pilots,Predictas, Portholes,Dumont,Dumont,RCA,Stromberg Carlson,etc. Also chairside, console, deco, novelty radios. Broken Catalins (colored bakelites). Harry Poster, Box 1883W, So. Hackensack,NJ 07606 Tel. (201) 794-9606 or 956-6680

--Globe King 500 parts,especially transformers.Collins speakers for 75A-1 and 75A-2 receivers. Heathkit AT-1 xmtr,VF-1 VFO and antenna coupler. Also Heathkit AR-2 or 3 receiver and Collins KW-1. David A. Knepper, Box 34, Sidman,PA 15955 (814) 487-7468

WANTED

--National 3" (measures 2 7/8") "Velvet Vernier" dial Type BM. Scale 0-100-0, preferably. Joseph W. Dreher, W2TKG, 1 MacArthur Road, Baldwinsville, NY 13027

--manual or schematic for TV-4/U tube tester used in AN/USM-3 test set,copy ok. 1946 and 1950 Allied catalogs. QSA honeycomb coils. Henley's 1924 book "222 Radio Circuit Designs". Have for sale Hickock 600A tube tester. Charles Closson, 1290 Glenwood Ave., San Jose, CA 95125

--Stromberg Carlson five tube radio about 1940 (or info about Stromberg). Also 5 tube octal AC/DC Super W which has rotary dial indicator loop antenna. Ray Larson, 12241 Gorham, W. Los Angeles, CA 90049

--Japanese 1930's AC set and Sony transistor set (first year). Will trade U.S. counterpart or purchase from Japanese AWA member.Also need 1V6,1AH4,1AJ5,1AJ4, 2E31. Have RCA prewar CTC 100 TV. Jerry Talbott, 1440 SW 239th Street,Hillsboro, OR 97123 Tel. (503) 649-6717

--any and all types of antique telegraph instruments, books and allied items of yeaterday. Harry L. Metzger, P.O. Box 111, Sinnamahoning,PA 15861

--SW-3 - please state condition and price. Al Obrist, N2AO, 304 Windsor Dr., Dewitt, NY 13214

--following radios needed for display in the CTS Turner Museum in Elkhart,IN: Pre WW-II Delco General Motors radio and early Motorola (Galvin) universal automobile radio,either by loan or purchase. Ross Smith, 1133 Strong Ave., Elkhart,IN 46514 (219) 295-7770

--Acme D coil assembly,Acme R3 & R4 transformers,Hallicrafters S meters, SX24,SX25,SX28 and bandswitch knob for SX28. Francis Emrich, 441 Swaggertown Road, Scotia, NY 12302

--Military surplus RBB,RBC,SRR-11, SRR-12,SRR-13,BC-640.Also want R-389, R-390,R-392 and R-220 (R389,R390,R392 must be manufactured by Western Electric, all others, any manufacturer) Bruce Gentry, 624 Plymouth Ave., Mattydale, NY 13211 (315) 455-7257

WANTED

--want colored bakelite radios or any deco looking radio in any color except brown. Mark Honea, 13201 N.W. 81st St., Parkville,MO 64152

--floor model cone speaker in good condition for Stromberg-Carlson 601. Also need Magnavox TRF5 and M-4 horn. Also interested in other battery and AC sets. Peter Pitcher, 54 Metaterraine, Wakefield, RI 02879 (401) 783- 4392

--schematic and info on Eagle 5 tube set with 3 tuning controls plus sensitivity, clarity,volume controls and switch. Ed Noll, Box 75, Chalfont, PA 18914

--Zenith radios from the 1930's (those with wooden cabinets, circular dials and no push buttons). I have Zeniths and some battery sets to trade. Arie Breed, 510 Lake Drive, Ottumwa, IA 52501 Tel. (515) 682- 6925

--Magnavox amplifier rheostats (3) for AC-3 or someone who could rewind same. Also schematic and info on Ferguson Model 3. Dick Doremus, RFD 3, Box 85, Newport, NH 03773

--solar powered radios made by Hoffman, Zenith,Motorola,Admiral,etc. and amateur experimenters. Also interested in other solar powered devices, toys, experimenter kits, photovoltaic cells and panels from the 1950's and 1960's. Randy Liebermann, 305 East 40th St.,Apt. 5J, Box 211, New York,NY 10016 Tel (212) 867-5747

--two tuning knobs and dials for a Western Electric 3B radio receiver.(For the outside front installations). Robert Meisenholder, 13900 S.E. 44th Place, Bellevue,WA 98006

--Sparton mirrored radios and Bakelite radios such as Fada, Emerson, Addison, Sentinal etc. Anthony Scarfagliero, 13 4th Street, Brooklyn,NY 11231 Tel. (718) 858-1231

--to communicate with anyone interested in collecting old televisions and TV memorabilia. Send a SASE and mention your interests and anything you have for sale or trade. Walter Kuntz, P.O. Box 1, Islip, NY 11751

--National SRR,HRO and FB-7;Hammarlund SWF-5 coil forms;Thordarson T2927 AF choke. Fred Mikolajewski,KC9WW, 1325 S. 103 Street, West Allis, WI 53214

--any information (owner's manual, ads, etc) pertaining to the National HRO-5TA. Will purchase originals or pay for copies. Frank Orcutt, 2214½ Santa Clara, Apt. A, Alameda, CA 94501

--QST issues June and July 1919. R. Arrowsmith, 3505 Woodburn Rd., Annandale, VA 22003

--amateur needs assistance assembling a small collection of telegraph bugs including both vintage and Vibroplex. John Hensley, 5054 Holloway Ave., Baton Rouge, LA 70808

--Aeriola Jr. crystal set and Vocarola speaker. Willing to pay premium prices for premium specimens.Send description and price, photos appreciated. Steve Roush, USFSR, APO Miami,FL 34022

--wanted dead or alive-chassis for an RCA model 8K radio.Dick Bergeron, Box 311, 11 Linden Lane,Essex,VT 05451

--BC 611 WWII "Walkie Talkie" or "Pogo Stick" transciever. J. French, P.O. Box 571, N.Y.,NY 10003

--DeForest audion single wing spherical bulb, 2-8008 H.V. rectifiers with sockets. L.J. Schnedorf,W9EWK, 610 Monroe Ave., River Forest, IL 60305

--chassis or parts for Stromberg Carlson Model 641-A, Sonora 3 dialer TRF believed to be Model 800C which resembles Splitdorf on page 132 of Vintage Radio. Ed Allison, 5525 20th Ave., Sacramento,CA 95820 Tel. (916) 454-1788

--old tubes-round top 45 and 50 tubes, W.E.300A/B,350B,252A.Also Rider manuals 1-5,20-23 and RCA Credenza. Charles Dripps, 4331 Maxson Rd., El Monte,CA 91732 Tel. (818) 444-7079

--Vibroplex historian/collector seeks early bugs,parts,catalogs & photos relating to pre-1940 models. Also info on Walter Phillips,Horace Martin,Edward Buchanan & United Electric Co. (Norcross, GA). Jim Aguirre,675 S.W. Ellerwood, Issaquah, WA 98027

--original cabinets for AK-19 and Magnavox AC-3 3 tube amplifier.Will pay up to $45 each depending on condition. Allen Jochem, 2205 Broadway, Quency,IL 62301 Tel. (217) 223-6751

--telegraph keys and bugs and other related instruments. Unusual items or rare, one of a kind types welcome from 1844 to present. Would especially like oil spark keys or early camelbacks. Gil Schlehman, 335 Indianapolis Ave., Downers Grove, IL 60515

--very old tubes, bulbs or bulb collections. Also want very old receivers and transmitters from Siemens & Halske and Telefunken. I plan to attend conference at Canandaigua. Franz Mock,Lederergasse 25, 3500 Krems, Vienna A-3500 Austria

WANTED

--Military Handbook 212(tube Inter. Dir); Signal Corps MC-88 typewriter (Western Union keyboard); VT numbered tubes. Hart York,P.O. Box 365, Fontana, CA 92334

--schematic, information on the Blue Ribbon Model 9-5 receiver manufactured by the Chicago Nipple Co. Also looking for junker set for parts. R.G. Weamer, 390 E. Foster Rd., Santa Maria,CA 93455

--Millen Vari-Arm Variable Frequency Oacillator, Pilot Wasp receiver. Jim Barrows, W7BCT, 15121 41st Ave. S.E., Bothell,WA 98012 (206)337-4880

--Delaney,Albright,Boulter,Martin, MacDonald,Western Electric.Postal Telegraph,A-to-Z,Brooklyn and Lippencott telegraph bugs. Neal McEwen, 1128 Midway, Richardson,TX 75081 Tel. (214) 234-1653

--any and all commercially made receivers, manuals,catalogs, antennas,subassemblies, parts,advertisemants etc. I am trying to collect and restore the whole line. Gil Barber, P.O. Box 31654,, Aurora, CO 80041

--information on Fada 6 model R-60 1926 replacement of pot metal casting. This secures the dial shafts and support bearings of the plate condenser shafts. A.H. Monroe, 30 Main St., Northfield, MA 01360

--CQ's publication "RTTY" and "RTTY A-Z" wanted desperately.Please state condition and price. Charles Days, 30 Sagamore Drive, S. Dartmouth, MA 02748

--schematic and instruction books (copies OK) for following test instruments: Triumph Signal Generator Model 130 and Sorensen & Co regulated power Supply Model 600 B "Nobatron". Leonard Aquilino 336 Hickok Ave., Syracuse, NY 13206

--type 485 tubes. C. Roger Moe.,Route 1, Box 1140, Wapato, WA 98951

--cabinet for Philco 90,chassis for AK84. David T. Walters, 13805 Florida Ave., Cresaptown,MD 21502 (301) 729-3133

--radio related literature,juvenile radio fiction,catalogs,booklets,radio board games,banks,advertising signs, wireless books,manuals. All from 1930's and before. Jerry Simkin, 10 Avalon Lane, Matawan, NJ 07747

--Everett earphones or any other early radio items with the name Everett. R. Brewster, 454 Biablo Dr.,Pittsburgh, PA 15241, Tel. (412) 833-4287

--RCA 56X with shortwave band. R. Becker, Box 355, Kent,WA 98032

--cathedral radio such as AK Model 84 or 164, Crosley Model 169,Philco Model 60B or 70B or similar.(working, with spare tubes) and Carborundum crystals. Helmut Kruger, Nelkenstr 2,CH-8304 Wallisellen, Switzerland

--Radiola Grand cabinet or grill,Crosley Pup coils, Patterson radio. Joe Szabat, 228 Plummer, Oil City,PA 16301 Tel (814) 677-4042

--Hickok Model 534 mutual conductance tube tester, any condition but micromho meter must be OK. Fred J. Wolff, 3820 East Avenue, Rochester, NY 14618 Tel (716) 586-1668

--any information on Globe Model 610 detector unit. Mark Gleason, 406 Utah, Glidden, IA 51443 Tel (712) 659-3871

--speaker for Scott All-Wave Fifteen, colorful Bakelite/Catalin/plastic radios of 1930's and 1940's (Fada,Emerson, DeWald,Sentinel,etc.) Michael Behar, 88 Wilson, Dr., New Rochelle, NY 10801 Tel. (914) 632-5966

--Klitzen Model 125 detector/amplifier. Unit must be in very good original condition.See page 895 of Nov. 1922 Radio News. Phillip Drexler, 1175 E. Ripley Ave., St. Paul,MN 55109

--Sparton Mirrored radios - circa 1935 table or floor models, working or not. Ross Young, 23 Beverley St., Toronto, Ontario, Canada, M5T 1X8 (416) 598-2172

--transmitting tubes and transmitting tube manuals, catalogs and data sheets from 1930's,40's and 50's. Have for sale manual for 1930 Hi Q 31 SW and tubes Cardon 484's,807,843,832,615,717A. Richard Lane, RR1,Dawson,IL 62520

DISPOSE/TRADE

--General Radio 1606A RF bridge,excellent condition $295. plus shipping. Al Smith, Stonehedge, Lincoln,MA 01773

--UX199's, three for $20.,six for $35.; UV199's, three for $22,six for $40.; VT24/864 $4.50 ea.,minimum 6 per order; UX201A's $3.50 ea.,minimum 10 per order. Floyd Paul, 1545 Raymond Ave., Glendale, CA 91201

--Hi-Fi equip., classic mono tube type tuners & amps:Fisher,H.H. Scott, Radio-Craftsman,National,MacIntosh,others. $6. to $50. ea. SASE for details. Bob Goodman, 7943 Ponce Ave., Canoga Park, CA 91304

DISPOSE/TRADE

--Altec (WE) saltshaker mike $50.; Ohmite dummy antenna $15. F.W.Chapman, Apt. B-218, 1130 N. Lake Parker Ave., Lakeland, FL 33805

--over 200 battery and AC radios. Send large SASE with 2 stamps for list. Donald Juleen, 6250 Ledge Rd., Sturgeon Bay, WI 54235 Tel. (414) 743-7922

--Webster Model 80-1 wire recorder with 3 spools of wire; two Silvertone consoles; Sonora phonograph in working condition. Make offer. Robert Kohl, RD2, Box 82, Mayport,PA 16240

--3A Carrier operated loudspeaker control $25.; microwave freq. meter Lavoie Labs range 375 to 725 mc (less batteries) $45. FM mod. monitor,Browning Labs. Model MO-25-A(rack mount) untested $35. plus UPS. F. Krantz, 100 Osage Ave., Somerdale, NJ 08083

--free old time TV's & equipment - late 40's,early 50's complete with tubes, Zenith 17" table model,RCA 17" console, Philco 17" console, RCA 16" round tube no cabinet, Stromberg Carlson 45 channel school console wood cabinet plus misc. table radios. Vincent Hueber, 101 Vibau Drive,Syracuse, NY 13207 (315) 475-8603

--new reprints, 1928 Rasco catalog, 144 pgs. $8.75, 1921 Duck catalog, 256 pgs. $18.75. Replica "Read Radio News" cast iron paper wieghts look like 0-100 tuning knobs 6" dia., circa 1925 $14.95. Peter Yanczer, 835 Bricken Pl., St.Louis, MO 63122 (314) 822-1748

--trade several pre-war RCA, Andrea television sets for other pre-war and spinning disc TV sets. Finder's fee paid for successful leads. Arnold L. Chase, 9 Rusleigh Rd., West Hartford, CT 06117 Tel. (203) 521-5280

--service manuals, display board, old Ham radio parts, testers,few spark transmitter parts, crystal detectors, headphones, speakers,rheostats and audio transformers. Large SASE for list. Joseph Horvath, W6GPB, 522-Third St., San Rafael,CA 94901

--vintage tubes, QST's,CQ's,handbooks, magazines,books early as 1920's. Send $1. and your wants for list. Tom Blair, WA2RUG, 302 S. Cedar, Maple Shade,NJ 08052

--communication receivers- National NC-173, National NC-400,Lafayette HA25 and Hallicrafter SX25. R.J. Turner, Box #56, Hopkins,MN 55343

DISPOSE/TRADE

--NC101X with book spkr, works,ideal for restoring $85., round filament xfmr, tapped secondary,made by G.E. for RCA for UV202 - UV216 $8. Add UPS charges on both items. SASE for additional info. Want 1600 kc IF xfmr. Bill Plimpton, RD6. Box 264. Wellsboro.PA 16901

--wrinkle paint for restoring old metal sets, black or brown only $4.50 for 13 ounces. Schematics $2.50, thousands of new tubes, xfmrs,capacitors. List available. Sue Coulter, Box 11-A, West Columbus, Bakersfield,CA 93301

--Model 805 tube tester - set tester, made by Radio City Products Co. This is a combination tube tester and multimeter. Has 10 sockets including one for acorn tubes.In wood case 17x13x5½. Turrell Uleman, 109 Virginia Ave., Pittsburgh,PA 15215

--Magnavox console Model 155B. 38"Hx34"W 19½"D. Radio 550-1600 khz and 5-18 mhz. Minus phono turntable. Good condition. Must pick up. C. Brelsford, 255 Danbury Circle S., Rochester,NY 14618 Tel. (716) 244-9519

--Hammarlund SP-400 in mint operating condition (extra tubes available).For pickup only after 6PM or weekends. $100. Bruce Kuhnert, 67 Willow Dr., Sudbury, MA 01776 Tel. (617) 443-5059

--schematics 1920-1960 for radio,TV,PA, ham, misc. Your $3.50 investment returned if I can't supply at least your schematic. Send full description of your set in first letter please. Alton Bowman, RD2, Canandaigua, NY 14424

-- vintage radio and related literature. LSASE for list. Herman Fothe, 10 Jackson Street, Sloatsburg, NY 10974

--1148 vacuum tubes, 99.9% new and boxed. Prefer package deal.Also several early tape recorders Send SASE for list. Neil O'Donnell, 1809 Sampson St., Butte,MT. 59701

--Sams PhotoFact material, some complete sets,partial sets and bits and pieces No 1 thru 831. SASE for my listing or your wants. Ken Gfeller, 5261 Scalley Rd., Belding, MI 48809

--Army Signal Corps Forest Service SPF portable transceiver, wood case w/9 2v tubes,National dial $30. Transformers: NOS Merit A-3106 univ. 125W modulation $15; Stancor A4762 polypedance $5.; Federal #65 (open) $5.; sealed interstage $5. ea. Jim Farago, P.O. Box 65701, St. Paul MN 55165

DISPOSE/TRADE

--large collection of radios and horns. LSASE plus 2 stamps for list. Tom Pamula, 2017 Crestview Dr.,Erie,PA 16509

--Hallicrafters SX-24 1939 (see FOS pg. 227 #5) works $75.; Philco 19B 1933, refinished, works $130 (cloth not original; Vintage Radio, FOS and many others. Send large 2 stamp SASE for complete photo list. Ron Boucher, 376 Cilley Rd., Manchester, NH 03103 (603) 669-1698

--chokes, transformers,tubes,capacitors, resistors,recievers,etc. Send SASE for complete list. Would like Hammarlund equipment. Sloan F. Million, 102 Ithaca Drive, Colorado Springs,CO 80911 Tel (303) 392-5605

--Reprints w/photos, schematics.AK Radio Service Manual,98 pgs., breadboards to Mod.52, $12. AK Radio Parts List, 64 pgs. Mod. 9-67, $11. Both include horns,spkrs. Philco 20 grill cloth, 10" sq. $6. Zenith 8½" dial glass $6.50 SASE for list. D. Szablewski, 1204 Andrews, Lakewood, OH 44107

--magazines-Popular Electronics collection, 1954-1980, over 225 issues,includes first issue. $40./B.O. Also many other old (1950's-60's) electronic magazines. Prefer not to sell individually. SASE for list. Ed Wyspianski, P.O.Box 3768, No. Fort Myers,FL 33918

--Crosley New Buddy, AK Kiel (pickup only), Philco Jr., Zenith, GE, Belmont tombstones, many art deco wood box sets and plastic sets. SASE for list. Ed Ripley, 2276 Holloway,Maplewood,MN 55109

--vintage table radios from 1920's thru 1940's. Also parts and tubes. SASE for list. Howard Granoff, 2445 Lyttonsville, Silver Spring, MD 20910

Department of the Treasury
Internal Revenue Service

How did you make out with your recent IRS return? I trust you were aware that noncash donations to public museums require donors to list and describe donations between $500. and $5000. (Revised form No. 8283).

Donations valued over $5000. require special forms filled out by both the donor and museum (#8282 and 8283). It is highly recommended that only a well qualified appraiser with credentials evaluate costly equipment otherwise one may find themselves in the I.R.S. office.

PROGRAM AT THE CONFERENCE:

COLLECTING OVERSEAS

A highlight at the Annual Conference will be an illustrated talk by Jonathan Hill, prominent radio historian,technical writer and photographer. He will cover all the "in" and "outs" of collecting broadcast receivers in Great Britain.In addition, Jonathan will give members a humorous review of early broadcasting in England during the '20s.

VRPS TEXAS AWA

VRPS-AWA CONVENTION
October 17-19, Holiday Inn
Duncanville, Texas

AWA will again join the Vintage Radio and Phonograph Society for their annual convention. As in the past, there will be the usual fine programs,contests and of course, a large flea market. For advance information, send SASE to:VRPS, Box 165345, Irving, Texas 75016

TESLA CONFERENCE

The IEEE and the International Tesla society will hold a Conference in Colorado Springs, Colo. July 30 to Aug.3 with emphasis on Tesla's contribution's to electrical engineering. It will commemorate the 100th Anniversary of Tesla's first U.S. patent for an electrical arc lamp. More info? Write:

IEEE Tesla Symposium, Suite 115
Box 150,Colorado Springs,Colo. 80901

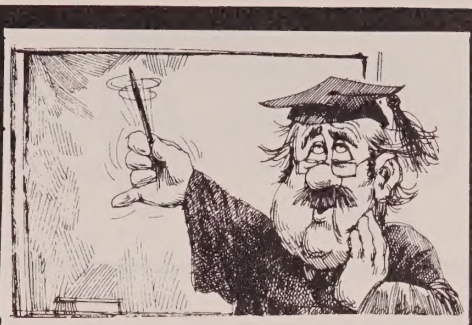
SURPLUS SALE AT ANNEX

Several out-of-town members wrote asking why AWA doesn't sell the 10 and 25¢ tubes (noted in the last OTB) by mail. The reason is economics. The available tubes are used "pulls" and stored in large boxes. Local buyers had to find the desired tube, set the tube checker and test each tube. If AWA hired someone to do this plus packing and shipping the cost would be at least $1. per tube. That my friends, is simple economics...

U.S. Tests Laser

The latest form of communication is with laser light. The Navy recently sent messages from a plane flying at 30,000 feet to a submerged submarine using an experimental laser!

BOOK & MAGAZINE REVIEWS



by Ernest Hathaway

E. H. SCOTT . . . The Dean of DX

by Marvin Hobbs

Better pinch yourself to see if you're awake? No, you're not dreaming; here it is: a book-length biography of Scott and the history of his company from the twenties to the fifties. I wish it were longer than 169 pages, and had more photographs, but I ain't complainin'-- it contains an awful lot of information as it stands.

The author joined Scott in 1939 and writes on the later phase of the company from personal experience, but has also done an excellent job on the earlier history, digesting a large amount of material and Scott literature provided by J. W. F. Puett (who hasn't admitted it, but I'm sure is the instigator for this commendable project). There is also a chapter on Scott's competitors.

You won't find a better account, and of course the post-1939 material is unimpeachable. Did I say that Hobbs joined the company then? Not only that-- he was chief engineer!

Paperback, $10.95 postpaid ($11.54 in Texas) from Puett Electronics, P.O. Box 28572, Dallas, TX 75228. You want photos and advertising for most Scott models? Order "*Silver Ghosts*" also $10.95.

Reviewed by Alan Douglas

RADIO !

is the title of a most unusual book now being printed in England. It is a complete book covering British receivers, speakers and valves as well as radio development in Great Britain since 1900. With over 1000 illustrations, it will allow the collector to identify any British receiver made after 1930. Available at the Conference.

History of **RADIO CONTROL**

Model Aviation magazine

March, 1986

Radio control of airplane and boats has been with us since the earliest days of wireless. Hammond, Miessner and others adapted crude transmitters and receivers in boats as early as 1912, and the military has given radio control much attention since WWI.

The greatest use of radio control today is with model airplanes. The real breakthrough for the hobbyist was solid-state circuitry which did away with heavy tube equipment and batteries.

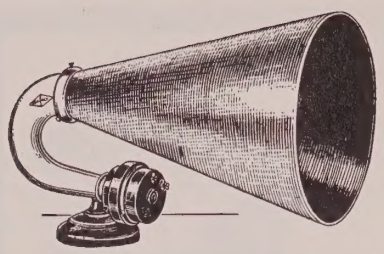
Walter Good (W3NPS) describes the evolution of the art to present- day practice. Well written, with numerous pictures and drawings, his article should be of interest to all radio historians. AWA is represented with photographs of early spark transmitters and coherer receivers.

PROGRAM AT THE CONFERENCE:

THE J-TEAM

What's that? Well, my fellow historians, it is a series of famous telegraph keys and the subject for Lou Moreau's talk. Did you know that there are French, English, Italian, German and Japanese "J" keys as well as our own?

This series of military keys and their identification makes a most welcome subject. Lou will show the audience, for an example, the key from the operating desk of the *USS California* that was bombed and sunk at Pearl Harbor. Then there is one from a communication cave held by the Japanese and taken by the Marines as well as keys from German tanks and battleships. They cover a period of several wars and should be of interest to the communication historian.



The LOUDSPEAKER

Editor: Floyd Paul, W6THU
1545 Raymond, Glendale, California 91201
All correspondence requires SASE for reply

A UNIQUE STYLE FLOOR PEDESTAL HORN SPEAKER

The Yahr-Lange horn speaker is a 40" high pedestal horn made of cast aluminum. It disassembles into four major pieces. (Pedestal base, long cylindrical neck, back half sphere dome and front face grill) The screen behind the grill work is copper mesh. The factory finishes were advertized as both antique bronze and rich brown crackle.

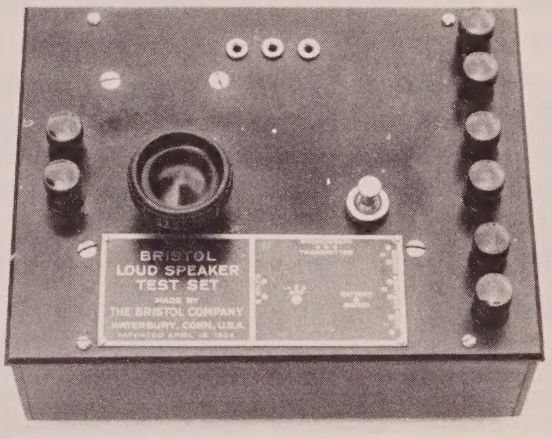
The horn was manufactured late in the horn speaker life cycle (often noted as 1922 to 1927). The design originated with a Mr. Bearl E. Colburn from Green Bay, Wisconsin. His ornamental design patent was filed in August of 1927 and issued in January, 1928. The design was assigned (sold to) Super-Ball Antenna Company, Inc. of Green Bay, Wisconsin. Super-Ball was either a fore runner or a subsidiary of Yahr-Lange of Milwaukee.

The first ad by Yahr-Lange appeared in September 1927. Ads appeared in several magazines including *The Citizen's Radio Call Book* and *Popular Radio*. The designation of the horn was "*Yar True-Tone Speaker*, a 27 inch tone column". It, indeed, is a one of a kind design. Its advertising claims were

"*Accoustically well designed, neat appearance, sufficiently heavy to stand on the floor without danger of tipping over easily*". Its color and design were to appeal to the housewife as a pleasing addition to the furniture of the house.

LOUD SPEAKER TESTER

"*Test your loud speaker, right before your customer without radio*" was an advertisement by Bristol in Radio Retailing magazine of March, 1925. The test set was a small table model box with terminals, jacks, switch and an impedance matching transformer which allowed a salesperson to attach three horn speakers and compare the differences with a phonograph input connected to the test box. The test box was called a Comparophon. Its cost was $60.00. The ad read "*A multiple switch on the Comparophon enables you to operate each speaker at will. Let the customer be the judge.*" The Bristol Company of Waterbury, Connecticut was one of the few companies to make a commercial test set



that allowed demonstrations of speakers to customers in the store. The author's test set is S/N 1047 and was purchased at the Elgin, Illinois, swap meet by Les Rayner of Scottsdale.

NEW MEMBERS

who are (or were) with the electronic communication or related industry.

Information in this column is obtained from the member's Application Form. If you are not listed, you did not fill in the form properly. (Feb.28, 1986)

Howard Newton (W2FB) Gen. Elec. Co.
Paul Vanlentino (K4FPF) Stat. WIS
Bill Humphery (W5JYT) TV engineer
Richard Keen Station KTYL
Dave Boyd (W3IFY) Raytheon Mfg. Co.
John Trow Station WTSC
Jeff Browning (KB5PS) Datapoint Corp.
Dale Fravel Harris RF Communication
Ed Elliott (WA2ENW) Alltel Corp.
Dave Kruh (WB2HTO) WRKO,WROR,etc.
Jack Walker (W3YW,W6ZCH,etc.) RCA,
Richard Ferranti (WA6NCX) Steinbrecker Corporation
Gordon LeRoy (W8ILO,W2PID) Dymac, Beaucaire,Inc.
Steve Webster. Stat. KCBX
Kent Randles (WA6YXZ) Stat. KZAP
Wm. Moneysmith (W4NFR) F.B.I. radio engineering div.
Gordon Hullin (K2ZBU) Gen. Elec. Co.
Jose de Barros Santos (Sao Paulo, Brasil) Director S.N.E.
Wm. Stuber, Douglas Aircraft radio
Donald Price, Canadian mobile marine
Frank Kupeczek, Stat. CHCH TV
Tom Blair (WA2RUG) Bell Tele. UHF
John Ward,Stats. WBBF,WGMC,WWWG,
John Caldwell (W2RDB) FAA,WRUN
William Glenn, General Radio Co.
Jim Ravencraft,Chief Eng. WHAM
Charles Harper, Amos Commun. Inc.
Charles Cross (K2HA) Hammarlund Co., Sperry, Philco Corp.,IBM,etc
Steve Chekey, Key Electronics
Richard Bender, Stromberg-Carlson
H.R. Rade (W8HPU) R&R Electro Nics.
Leonard Paciorek (WB2KFX) WDET,WJEK
H.Dan Von Jenef (N3ELB,W9NWJ) V.P. Microwave Div. Gould, Inc.
R.C.Kerns (K2VNM) Super. Nuclear Reactor at S.U.N.Y.
Robert Defenderfer, Station WSPS
David Urban, Stats. WIPS,WXTY
John Huntoon (W1RW) Ret. Editor QST and ARRL Staff
J.L. Huard (VE2IG) Canadian BC Corp.
Geo. Scott (W2LFX) ITT,Dumont Labs.
Miss Eva-Britt Martensson (Radio-Sweden)
Dr.VanHout Mark (ON4CE)(Radio-Belgium)
Ragnar Otterstad (LA5HE & OZ8RO) Denmark (Clandestine research)
Vittorio Franzoni (Brescia,Italy) Radio
Ian McAuley (VE3MYO) Canadian Naval Wireless
Calvin Dillon (W5OGL) Western Union
Edwin Ozeluis, Radio Corp. Of America
Osborn Price (WA6HUP) Relay manu.,etc.
Edward Smith (W8JYY) Electronic Eng.
Wilfred Conley (W8CZR) Police commun.
Gary Koster (N1AD) Voice of America
Ronald Thomas (W8QYR) Stat. WBBW
Richard Brown,Radio Corp. of America
Wm. Bannay (W1RLD) BC stat. eng.
Cliff Hogan (WB2TZJ) Ft.Monmouth Radio
Stuart Edmonds (WØGW,W5GRI,W7HCV) Radio Comm. Bur.Ind. Affairs
Kenneth Chiaro, B.C. stat. eng.
John Davis, Radio ITV Serv.
Kenneth Stryker (W9CNC) Editor of "Longwave Beacon Guide"
Ed Tober (K2AJ) Sip Operator,VOA,etc.
Paul Dillon (W5GT) Broadcast enginner
Paul Swearingen, Stats. KUDL, KIKS, KKOV,KVOE,KANA, etc.
Guy Thomas, Radio-Television serv.
George Onsum (W7IC) Ship operator
George Andrews (W5PV) P.A.A., EAL Radio, ship operator
George Graveson (K4JI) AT&T, WEAF, NBC,Radio Free Europe,United Fruit
Edwin Buhite, Tektronics Inc.
James Aguire (WB7DHC) News Editor, Voice of United Nations
Bruce Kaufman, Controlex Corp.
Bill Wells, Chief Engineer WBAI, WRCR
Wm. O'Donnell (W2XJ) Radio Commun. Tech. N.Y.S. Def. Com.
Charles Pierce (WD4KQD) Dave Joyner & Associates.
Jerry Carmean (W8FE) Stat.WOUB,WLGN
Joel Kandel (KI4T) Pres. Kandel & Asc.
Roy Davis (WB7DKY) Elec. Tech. Con.
Alfred Grebe Jr.,Owner Radio & TV Co.
Jack Hubbell (WØNHS) Hydro-Elect. con.
Jerry Bennett (W4BGK) Airline commun.
Albert Hope, Station WPCN
James Wright, (Peterborough,England) British railway engineering
Ronald Irving (G3SYX) Lincolnshire, England, Tech. writer

JUNIOR WIRELESS CLUB

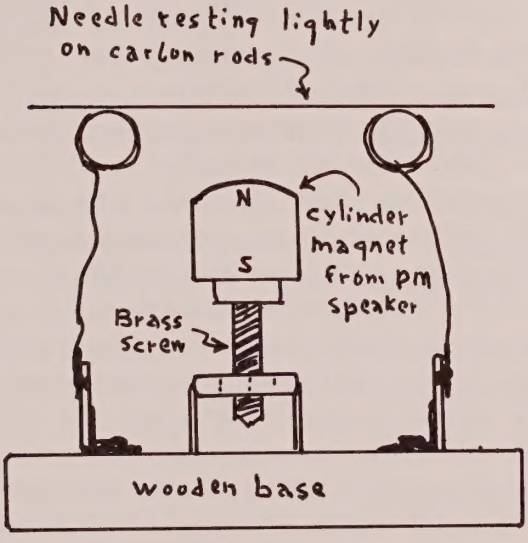
Devoted to wireless development before 1912

by James Hicks

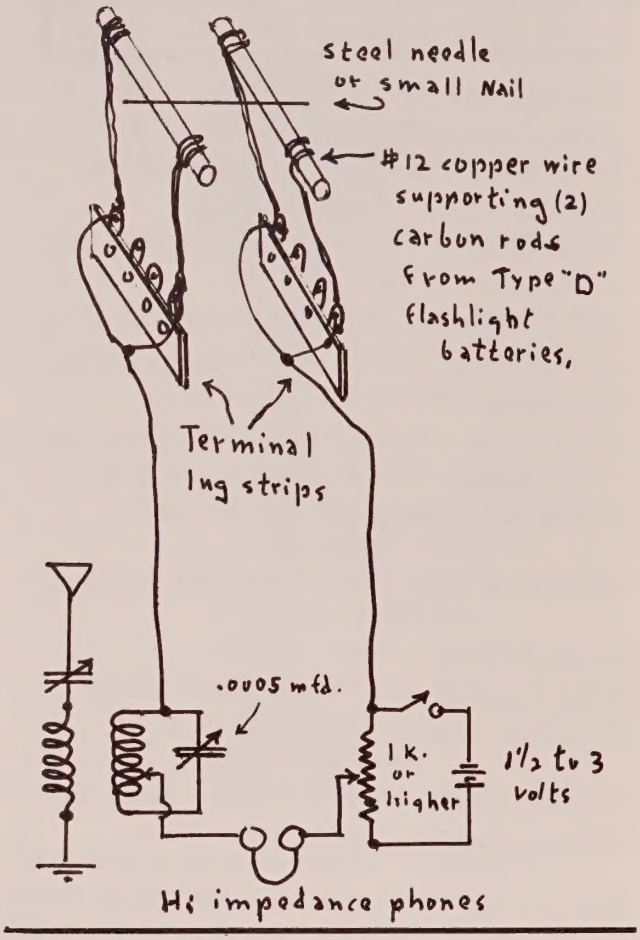
TURN-OF-CENTURY DETECTOR

by Carl Apple, Marietta, Ohio

I've read about the carbon-needle detector and decided to see if it would work. See my lay-out. The needle (or small nail) will work when placed on the two carbon rods without the battery or magnet. These additions, however, enhanced its reliability to detect and gave good reception but not as good as a galena detector. Adjust the bias potentiometer and magnet for best volume.



A magnet from a small PM speaker may be placed under the needle to enhance reception. Use a brass threaded screw as noted. Adjust height for best results.



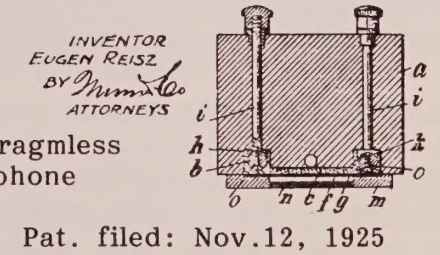
REISZ MICROPHONE

Nine years ago AWA published a short article on the Reisz microphone (June, 1977, page 15). AWA is now the owner of such a microphone, a gift from Grote Reber of Tasmania, Australia.

This odd and rare piece of broadcast equipment is enclosed in a 4" square block of polished marble. Engraved in the marble are the letters:

BROADCAST STUDIOS
Melbourne
No.5

AWA has over 100 microphones, none of which are on display at this time.



Diaphragmless microphone

Pat. filed: Nov.12, 1925

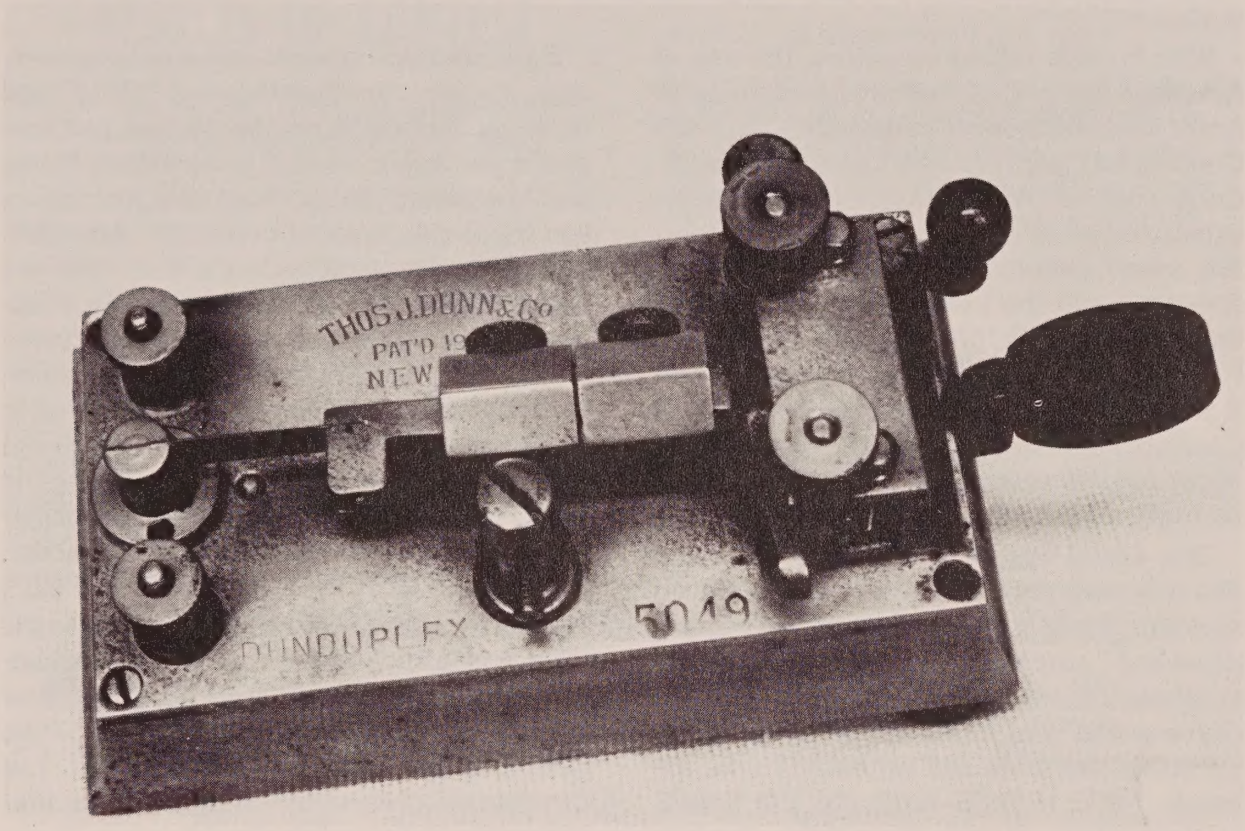
PROGRAM AT THE CONFERENCE:

The JUNIOR WIRELESS CLUB

AWA will again host a meeting of the Junior Wireless Club on Thursday at 3 p.m. Who are members of the club? You are if you're interested in very early artifacts: old meters, engines, electrical motors, odd wireless items, very early books or pictures, unique mechanical devices, etc. Bring whatever you have that may be of interest and be prepared to show it.

KEY and TELEGRAPH

Editor: Lou Moreau, W3WRE



The DUNDUPLEX, patented in 1909 by R.J. Dunn, it was one of the so-called 'bootleg bugs' that cropped up in the early semi-automatic field. This particular type was completely semi-automatic either vertically operated by tapping the plunger type knobs on the bridge, or in the more familiar horizintal style using the thumb and finger pieces. It was banned by the Vibroplex blanket control thus the nickname 'bootleg'.

(W3WRE Collection)

QUE: *I have a bug marked O.M. Thomas Electric. Is this a bastard bug?*

ANS: No,it is a so-called "bootleg" bug, not an Albright key. That name "bastard" is not and never has been an official one. Rather, it is a slang word that some of the fraternity applied to any non-Vibroplex that had the Albright license on the base. If they must be identified, then the more acceptable designation "Albright Key" is used rather than that rather "smart aleck" or sophomoric one.

If your key does not have either the "Special Western Union Number", the Albright license, or the "Special Number" one, then it is one of the many types of keys that were made to buck the Martin control of the semiautomatic market. The most frequently found models might be the Thomas that you have, or the Mt. Auburn Speciality Co., or R.J. Dunn's "Dunduplex", the A to Z Novelty Company or possibly a William MacDonald.

Any of these were excellent instruments but they all fall into the "bootleg" bug class because of their inability to meet either the Vibroplex or Western Union specifications and thus were illegally used.

One of the most interesting attempts to bypass the Martin control was the Dunduplex that was completely semi-automatic even when operated as a vertical type key. Another was the Vail-O-Graph, either was semi-automatic in dot position whether it was vertically operated as a handkey or as a bug. So call yours a "Bootleg Bug".

AMERICAN MORSE CODE vs CONTINENTAL

With equally skilled operators, the use of American Morse Code will provide somewhat faster transmission of information than will Continental (International) Code. Dr. Ivan S. Coggeshall KA1AVG some time ago made an exhaustive study of this subject in comparing two speed contests – one champion using American and the other Continental – both using as a text *COMMAND OF GIDEON.* He computed it took only 7978 pulses to send it in American but 9076 pulses to send it in Continental. Spaced dots in American instead of dot and dash combinations as in Continental makes a considerable difference.

The actual speed of letters in American Morse is often not constant since most skilled operators have a practice of slightly slowing down and "*emphasizing*" uncommon or difficult combinations of letters in some words. Some words sent in American can be made up solely with dots and no dashes – for example "SHE HOPES ERIE ICE CO SHIPS HORSESHOE ZIPPER SCOOPS". Try it in both codes and time yourself.

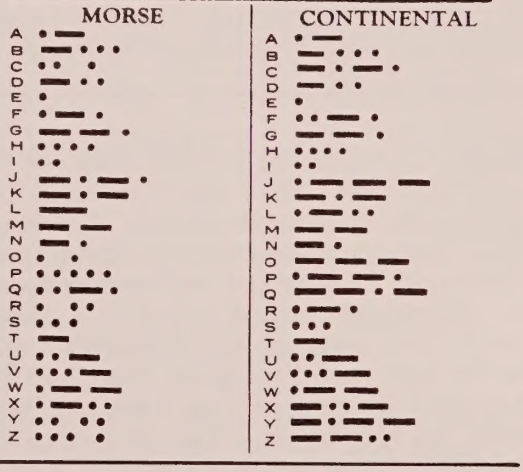
The spaced dots used for the letters C, O, R, Y, and Z and the long dash for the letter L in American Code sometimes used to get careless operators into trouble. In 1846 President Polk dispatched General Zachary Taylor to Texas to seize disputed land from Mexico. A press telegram arrived in Washington reading "*GENERAL TAYLOR SEEN IN NEW ORLEANS*". A move was about to start to oust him for deserting his post, until another telegram arrived which corrected the message to read "*SON*" instead of "*SEEN*".

In a second case a contractor sent his foreman to another city to inspect a building scheduled for renovation. The contractor received a message from him reading "*FOUND A LION VERY WEAK IN BASEMENT WHAT SHALL I DO?*". Confusion reigned when the foreman received a reply "*CALL LOCAL ZOO ASK FOR ASSISTANCE*". The message was supposed to read "*FOUNDATION VERY WEAK IN BASEMENT WHAT SHALL I DO?*".

If you were to transmit, say a military message, in cypher in which the word "OTLØ" had to be copied exactly per the original, just how would you safely send it in American Morse and how would the receiving operator assure you that he'd copied it correctly? Ambidextrous bi-code operators found that error-free handling allowed no mind-wandering or absentmindedness in the transmission of cypher words. One signal indicates a certain letter in American but the same signal when used in the Continental Code may indicate a different letter as is readily disclosed in comparing the two. Pity the operator who caused a disaster in copying a million dollar financial transaction cypher word as "CRFX" instead of "JFQL".

American Morse was always confined to the US, Canada and Mexico because the spaced-dot letters and the long L were not suitable for submarine cable operation and the early needle type telegraph instruments in Europe. The Continental code was compiled at the first International Telegraph Conference in Berlin in 1851.

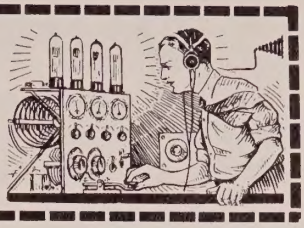
TELEGRAPH CODES



Efforts were made at the turn of the century to induce American Code operators to adopt the new International (Continental) code but the steadfastly refused. However, in the early days of wireless, American Code operators aboard ships were forced to learn Continental in order to communicate with European shore stations and other foreign ships.

AMATEUR RADIO

Editor: Ken Gardner, W2BGN
42 Oakdale Avenue S., New Hartford, NY 13413
All correspondence requires SASE for reply



RESULTS OF CONTEST

Top Ten in the Cundall Memorial CW Contest (January, 1986)

Call	Score	Call	Score
W8VSK	1114	WA3GMS	950
J37XC	1052	N3AYU	926
W8BFD	1050	W2SN	920
W2VDI	1010	K2LP	886
W2LV	994	W1YG/4	881

Statistics:

Logs mailed- 143
Logs received- 97
Total participants- 105

29 stations with QSO's on 160 meters and 12 of them used OT gear.

Our congratulations to Joe Keese, W8VSK and to others in this top 10 group. Joe wins the honor of being Net Control for the 3584 First Wednesday AWA Net, also a memorial to Linc Cundall, W2LC.

Complete scores in the August OTB. --- W2BGN

A.W.A. NET

Effective immediately, the Tuesday 8 PM 75 m. SSB Net will move from 3867 kc. to 3837 kc. to avoid heavy QRM.

TUESDAY 8 PM 3837± kc. SSB

AMERICAN RADIO RELAY LEAGUE

RECEIVED AT Salem Wis. TIME 9:45PM DATE Feb 24th 1917

Prefix	No.	Check	Date and Hour Filed	FROM	Relayed via
RADIO	1	25		2ZK	8YD

TO Mayors of Los Angeles, Cal., and Seattle Wash.

Instructions

On behalf of New York City I send cordial greeting to Los Angeles and Seattle and best wishes for the success of the radio System.

SIGNATURE John Purroy Mitchel

ORIGINAL ARRL MESSAGE FORM

Remember the Trans-Con held at the 1983 Conference with (4) high-power spark transmitters? Reproduced above is an earlier Trans-Con message originated by 2ZK and relayed by Gene Hartnell, 9DP at Salem, Wisconsin, February 24th, 1917. This original pre-war message form, with several others, is now on file at the AWA Museum. AWA also has a small collection of rare original telegrams dating as early as 1854.

TRANSMITTER AWARD

It has been suggested to widen the range of entries in the Transmitter Construction-Restoration Award given each year at the Conference. Henceforth, with the approval of the sponsor (Rex Matlack) the entries will now include all amateur equipment: receivers, transmitters and accessories such as wavemeters.

So let's get busy and build or restore some amateur gear and have it ready for the Conference. Who knows-- you may be a winner!

THE A.W.A. MUSEUM ANNEX

Members have been reading about the Association's Museum Annex since it opened in 1981. It is located about one mile east of the Museum on the American Legion road. The spacious building has allowed the Museum Committee to acquire large equipment which otherwise who have been turned down for lack of space. In addition, it has provided an opportunity to move much of the material from the old museum to permanent quarters. It is a combination museum and storage area.

Dick Ransley took a few pictures back in the winter which will give members some idea of its contents. The Museum Committee will again spend several work days this summer re-arranging and accessioning equipment. More pictures in a future *OTB*.

KEY TO ANNEX LAYOUT

"A" Room housing valuable equipment.

1. Crystal sets, loosecouplers, telephones.
2. 8 ft. steel shelves with amateur receivers and transmitters.
3. Rare receivers: W.S.A., DeForest, Radio-Craft, Grebe, etc.
4. Glass showcase with detectors, coherers, etc.
5. Glass showcase with telegraph keys, sounders and relays.
6. Rare meters and other small items.
7. Early spark transmitters and receivers.
8. - 9. WWI military sets, foreign receivers, spark equipment, etc.
10. Collins and National receivers.

"B" Library

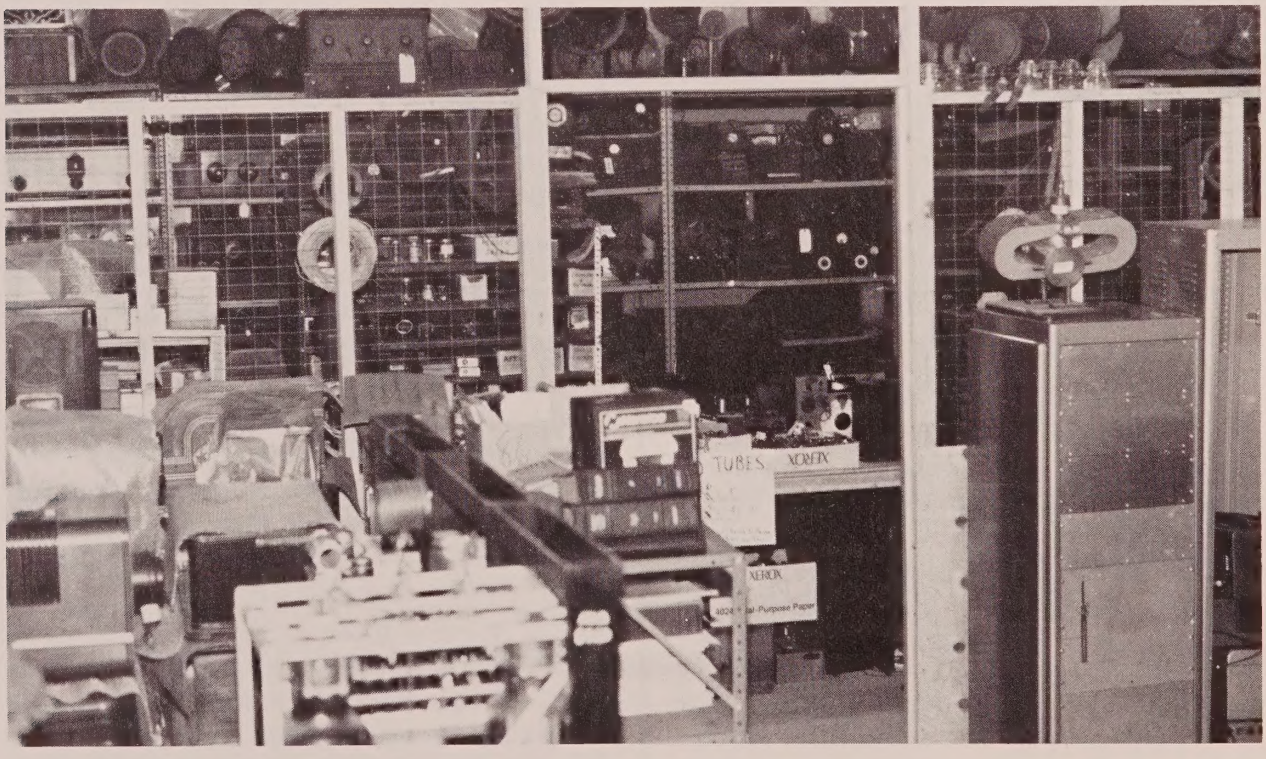
1. Historical reference radio books.
2. Desk
3. File cabinets (mostly military equipment manuals from Naval Research Lab).
4. Complete set of Riders (regular) and TV.
5. I.R.E. Proceedings, Call books, magazines.

"C" Military Area

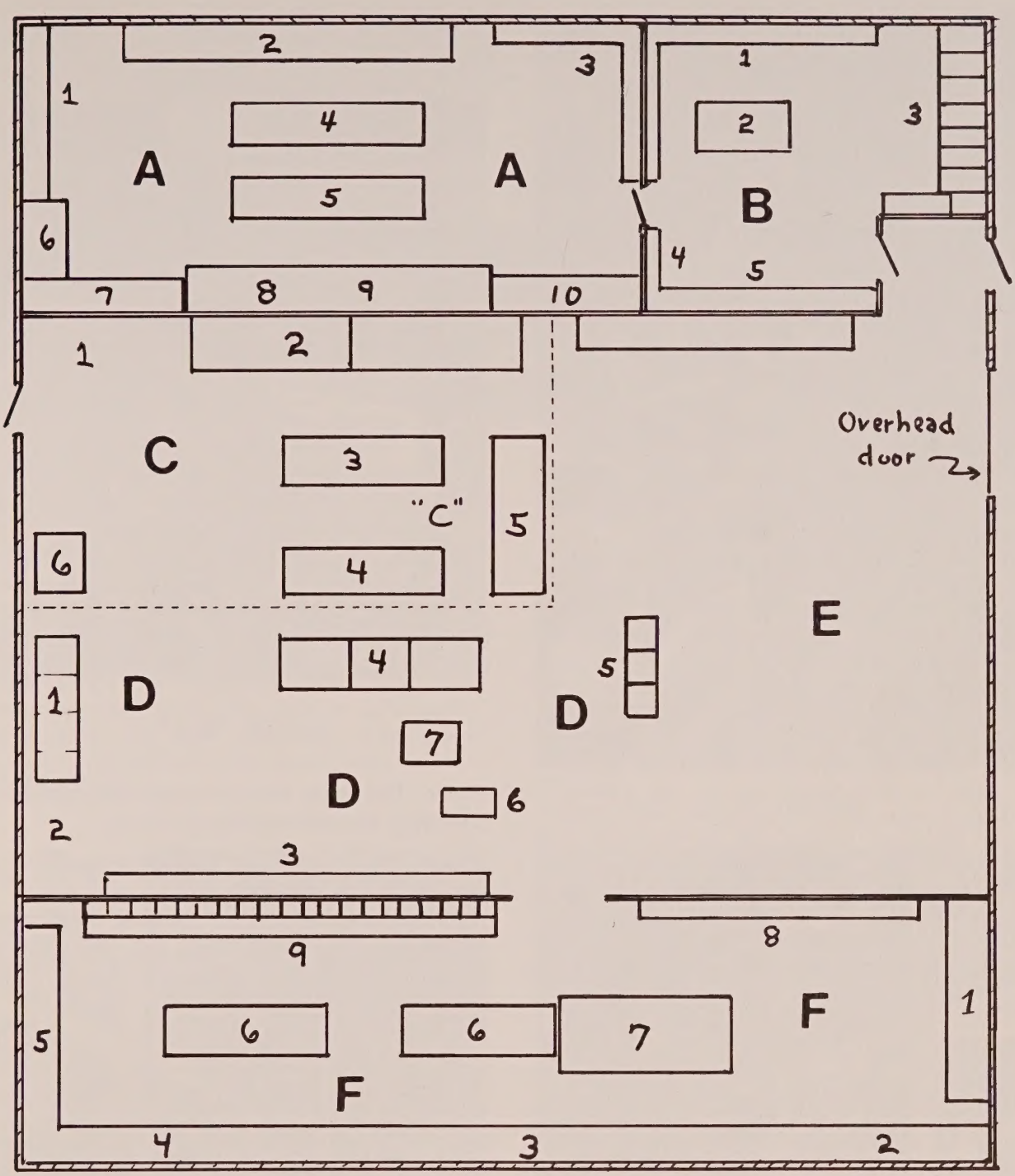
1. Large equipment: teletype machines, pieces from NAA (Arlington), NSS (Annapolis).
2., 3., 4. Large heavy shelving holding Army and Navy equipment.
5. Large double-deck display holding rare Navy receivers of the 1920's and 30's.
6. ½ ton TBL Navy transmitter from Washington Navy Yard.

"D" Commercial and Amateur Transmitters

1. 8 ft. x 8 ft. 1-ton historical diversity receiver from RCA Rocky Point.
2. Early W.E. BC rack, amateur transmitters in cabinets, etc.
3. Audio equipment, early turntables, tape decks.
4. 1000 watt RCA broadcast transmitter.
5. Jim Millen's 1 kw. amateur transmitter.
6. 1914 professional 35 mm. motion picture projector and camera on tripod.
7. Transmitter from Irving Johnson's schooner "The Yankee"



Entrance to Room "F"



"E" Large area of console radios and floor model

TV receivers (stacked vertically).

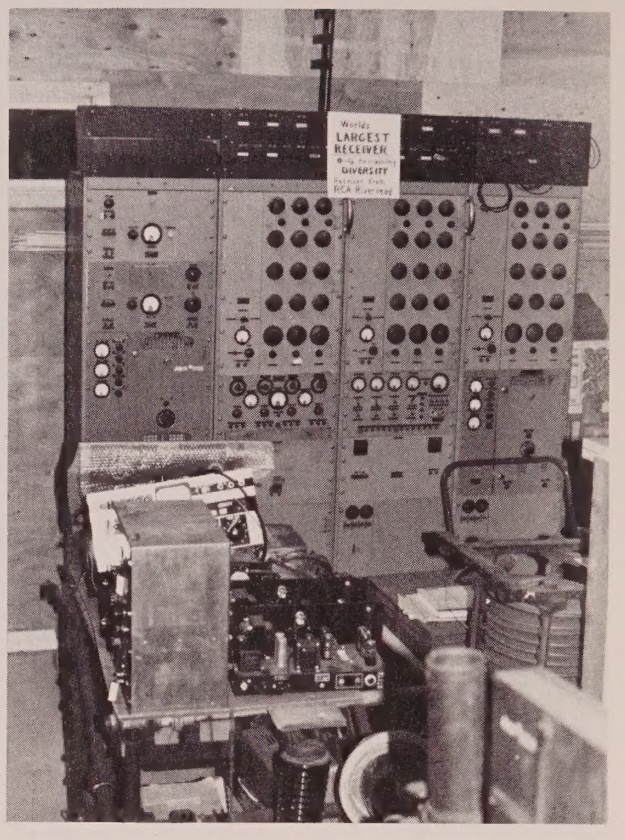
"F" General Storage Area with heavy steel 3 ft. x 8 ft. shelves

1. Small table radios (approx. 150)
2. Measuring instruments, large meters, wire recorders.
3. Broadcast receivers (no count)
4. Broadcast receivers, RF measuring equipment
5. Speakers, etc.
6. Large heavy 8 ft. work tables.
7. Transformer storage (4x6x8 ft. steel)
8. Component storage.
9. 16 feet of supply bins of parts, dials, knobs, jacks, rheostats, etc.

Section of "A-3"

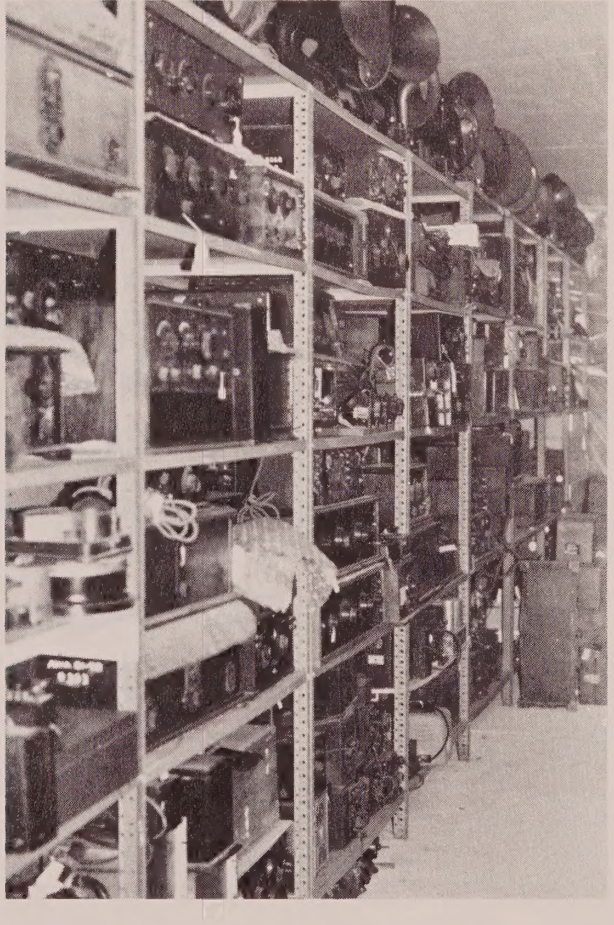
[Continued on next page]

Section "A-2"



Section "D-1"

Note: The large vacuum tube collection remains in the old museum.



Section "F-4"

Section "F-2"

WITH THE COLLECTORS

PROBLEM SOLVERS

Carl Ziegler
Fairport, N.Y.

DIAL FILL

I just restored two battery receivers which had 0 - 100 dials with the white lettering dis-colored or missing. I tried ordinary crayon but it didn't work. The solution was a white lacquer stick. First carefully remove the remaining fill with a toothpick (don't use a hard tool). Then clean thoroughly, wipe and dry. Apply the fill in the numbers and lines and wipe excess carefully with a soft cloth. The dials will look like new. The sticks (Cat. #AE-229) @ 90¢ each) can be ordered from:

ANTIQUE ELECTRONIC SUPPLY
688 W. First St.
Tempe, Arizona 85281

BRITISH OCTAL vs AMERICAN OCTAL TUBE BASES

Have you tried to insert a British Mazda octal tube in a standard 8-prong socket? If you have – you soon found it wouldn't fit for several reasons.

– the center post is larger on the Mazda.
– pins are spaced wider apart.

Why the difference? One might think it was done deliberately for sale replacement purposes. Not so. According to a short writeup in Tudor Rees *Antique Wireless Sheet*, there were several reasons for the differences:

– the large center post accommodated the vacuum exhaust tit resulting in a smaller tube and shorter leads.

– pin connections were different to interpose "ground" pins between "live" ones to keep stray coupling at a minimum.

– pin spacing was different to reduce capacitive coupling.

Result: a good tube with excellent high frequency characteristics.

THE PHILCO MODEL 96

Bob Lozier calls our attention to the need to be cautious when replacing modern capacitors of 8 or 16 mfd. for old low value paper condensers. A good example would be in the Philco "96" as noted in the last OTB which had 2 mfd. caps in the power supply.

An 8 mfd. cap placed on the output side of the filter choke would work but if placed on the rectifier side of the choke there may be an increase in voltage as much as 30% which could be disastrous. On this subject-- remember electrolytic replacement capacitors that have been on the shelf for several years may need "re-conditioning".

A DYING BUSINESS . . .

There was a time when one could make a living operating a small business of selling and installing car radios. But no more. The current trend toward hi-tech electronic gadgetry in present-day cars induces the manufacturer to make the radio part of the system. In addition, the car dealer wants to make an extra buck on the sale with a ready-installed set. In fact, a high percentage of all new cars are now equipped with radios, leaving the buyer with no option to selectively buy his own set. This forces the small-time radio businessman out of the market. Changing times.....

Have you built an old time receiver? Have you done some restoration on it? If so, write and tell us about it.
A.W.A., Holcomb, NY 14469

JUNIOR WIRELESS CLUB

I recently borrowed several early MODERN ELECTRIC magazines from the AWA library, a donation from Morris Groder. I found the old time want ads as fascinating as the articles. Share with me some from the February, 1914 issue. -- Carl Ziegler.

MODERN ELECTRICS AND MECHANICS

Apparatus Exchange Department

This department is for the free use of our subscribers and readers, to enable them to exchange technical articles for which they have no need for other articles or apparatus which they prefer.

Advertisements under this heading containing more than fifty words cannot be accepted; the right is reserved to rewrite or reject any advertisement which will not be for the best interests of our readers. Advertisements under this heading will be inserted one time only, free of charge.

WILL EXCHANGE ONE PERIKON DETECtor, 1½ inch spark coil, one battery motor, one detector, one 1-16 H. P. motor, and a lot of other electrical goods, also a five passenger automobile and a 1912 motorcycle; want a good diamond, screw cutting lathe and a ¼ H. P. or larger D. C. motor; write for complete list of electrical goods as well as several typewriters. Ulysses Fortier, 108 S. Main St., Tulsa, Okla.

WILL EXCHANGE COMPLETE WIRELESS set, consisting of 1 K. W. transformer, condensers, helix, gap, key, line protector, aerial lead and switch, anchor gap, loose coupler, mica condenser, detectors, and phones for "Yale" motor cycle, 1911 model, or later; correspond with Stuart Wainwright, 14 School St., Andover, Mass.

WILL EXCHANGE A FINE RECEIVING OUTfit, consisting of a large loose coupler, mineral detector, E. I. Co.'s fixed condenser, and E. I. Co.'s 1000-ohm amateur phone and headband, for a ½ k. w. transformer. Emerson Gill, Gibsonburg, Ohio.

WANTED—A GASOLINE SOLDERING TORCH, a 22 cal. revolver, or a repeating air rifle; will give in exchange a water motor in good order worth about $2, a pocket flashlight (needs batteries), worth 35 cents, 100 stereo views worth $1.50, some good Alger books, and other things. J. J. Naylor, Batavia, Ohio.

COMBINATION MOVING PICTURE MACHINE and magic lantern, slides and films, worth six dollars; Simplex typewriter, worth one dollar, and five dollars' worth of handy articles, for wireless or electrical goods. George Tompkins, 370 Cypress Ave., Bronx, New York.

FOR EXCHANGE—ONE EDISON PHONOgraph and records, one No. 4 Eastman kodak (4 x 5), one small field glass, one hammerless revolver 38 cal., and about 20 volumes of boys' books; in return will consider a loose coupler, head phones (H-C preferred, 3,000 ohms), variable condensers and a good rotary gap with motor for 110 V. A. C. Frank L. White, Rivera, Cal.

HAVE A 12 H. P. GASOLINE ENGINE, TWOcylinder, four-cycle, air-cooled, Shebler carbureter, tank and fittings, oilers, etc.; in exchange for a good sending wireless set or a closed core transformer or other wireless goods. Albert Massimo, Bellcourt, Bayside, L. I.

I HAVE A MOTORCYCLE ENGINE IN PERfect working order; will exchange for standard wireless instruments; will accept wavemeter in part payment. Ross Gunn, 369 W. Lorain St., Oberlin, Ohio.

HAVE OSCILATION TRANSFORMER, ELECtric motor, receiving condenser, silicon and galena detectors or Splitdorf ignition coil. J. Robert Lange, or 1600 ohm phone for detectors and condenser. E. Meyer, 1841 Willington St., Philadelphia, Pa.

WILL EXCHANGE 1½ IN. SPARK COIL, 250 volt, 25 amp. combination switch and cutout, 2 slide tuner, and jointed fishing rod for small gasoline engine or loose coupler and static machine in perfect order. Henry Stevenson, Post Office Box 1067, Wenatchee, Wash.

WILL EXCHANGE, SEPARATELY OR TOgether—A foot-power scroll saw with extra saws, drill and emery wheel attachments; pair of ball-bearing cycle skates, and 30 in. sailboat hull with cabin; would like Blitzen or Murdock variable condenser, Brandes or Holtzer-Cabot phones, loose-coupler, or other wireless apparatus. Vincent M. Youmans, Jr., Beach Ave., Larchmont, N. Y.

HAVE THE FOLLOWING ARTICLES TO EXchange for wireless instruments: One rotary printing press and complete outfit; has two sets of type and prints 16 lines; cost $3.00; used very little. An L. E. B. pocket tool kit containing 47 tools, a ½-inch spark coil, complete, except case and vibrator. Total value, $6.50. Would like a 1½ or 2-inch coil. Allen W. Coven, 446 Earl Court, Elyria, Ohio.

WILL EXCHANGE THE FOLLOWING: TWO fixed condensers, two coherers and decoherers, spark gap, D. P. D. T. switch, No. 1 omnigraph, printing press, four years of "Popular Mechanics," some back issues of "Modern Electrics," and a four bar magneto; would like variable condenser, loose-coupler, detector, or Jove wireless key. Donald Davis, Montrose, Col.

HAVE FOR EXCHANGE A WINCHESTER Model 1902 single-shot rifle, 22 caliber, 18-in. round steel barrel, perfect condition, cost $4; will exchange for something in wireless line. K. C. Bailey, Box 440, Southington, Conn.

OFFER FOR EXCHANGE $12 POCKET RELAY, fountain pen, $8 camera, $2 electric bicycle horn, $3 railroad relay, $2 learners' telegraph, $5 telephone, $6 receivers, 2000; $8 telegraph plug switchboard, ½-inch coil, Treco whistle, electrolytic detector, in good condition. E. P. Hough, Johnstown, N. Y.

FOR EXCHANGE 1 MESCO VARIABLE CONdenser, 1 Marconi one-half inch spark coil, 2 E. I. Co. old style enamel wire tuning coils, 1 E. I. Co. loosecoupler, 1 Bunnell 20 ohm sounder, silicon detector, rheostat, Mesco telegraph key, single leather covered headband, 75 ohm receiver, 2 S. P. S. T., 1 S. P. D. T., 1 D. P. D. T. switches, 1 rotary gap with 8 volt motor, 2½ pint Leyden jars; want 6-60 or 6-80 storage battery, rotary variable condenser, or Holtzer-Cabot 3,000 ohm phones. Howard Haines, 415 West 22nd St., New York City.

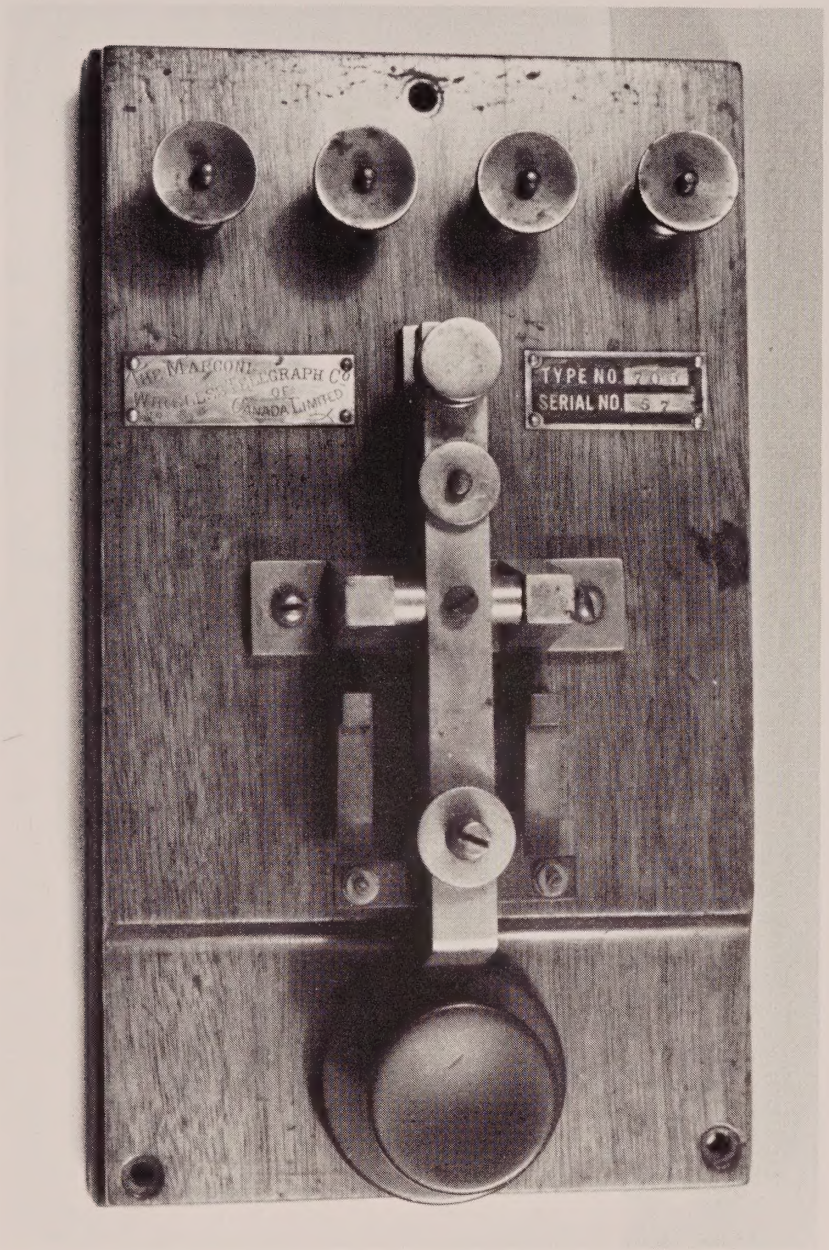
TO EXCHANGE—ONE INCH SPARK COIL IN first-class condition, two slide tuner, galena detector, key, and 1,000 ohm head phone; three 10 and 6 in. four ball insulators, 50 ohm sounder, six 100 amp. switch contacts, 900 ft. No. 16 and 25 feet No. 4 copper wire, for anything. Fred Zimmermann, 426 E. 85th St., New York City.

WILL EXCHANGE FLASHLIGHT, COHERER and decoherer, 8 antenna insulators, fusible cutout with 2 ampere fuse, battery volt-ammeter, 1-inch wireless coil, telephone magneto, telephone transmitter, 75 ohm receiver, shocking coil (home made), 80 ohm extension bell in case, No. 1 Brownie camera, 3¼ x 5½ double plate holder, Knapp type S. dynamo motor, receiver cord; make me an offer. W. J. Baker, Clayton, Ohio, R. R. No. 1.

WILL EXCHANGE ROTARY GAP THAT OPerates on 4 to 6 volts and good up to ¼ K. W., 1½ inch spark coil, home-made loose coupler, and 2,000 ohm phones with head band; would like ½ K. W. transformer coil with vibrator, storage cells, variable condensers or other articles. C. Bantz, 414 22nd Ave., Milwaukee, Wis.

MARCONI EQUIPMENT IN AWA MUSEUM

FROM LINC CUNDALL'S PAPERS: A DESCRIPTION OF A MARCONI KEY



While sorting through some folders from the Cundall estate, I found this picture and information about a key on display in the AWA Museum.

The key was given AWA about 30 years ago by an old Marconi operator. Curious about its history, Linc wrote the president of the Canadian Marconi Company, a Mr. S. M. Finlayson of Montreal.

According to Mr. Finlayson, the key was made sometime before WWI by Canadian Marconi at their Glace Bay, N.S. shop. He indicated the auxiliary contacts mounted on the two square posts in front of the main trunion would close when the key was pressed. These posts were connected to the center binding posts in the rear of the key. Wires from the binding posts ran to the nearby receiver input thus blocking heavy rf from going into the set.

As noted, the wording "*The Marconi Wireless Telegraph Company of Canada Limited*" is barely visible on the left plate. The right plate tells us it is *Type 705* and *Serial No. 57*. This is one of the several rare Marconi keys in the AWA Museum.

-- *BK*

AWA TAPE LIBRARY

The AWA tape library was started in 1954 with reel-to-reel recordings. The recent winter months provided time to transfer these tapes to cassettes which are now in common use. The library is unique in that it may be the only one of its kind. The tapes are divided into 4 groups:

1. **Voices of well-known amateurs:** George Grammer, Herb Hoover, John Reinartz, Frank Jones, Ed Tilton, Bill Eitel, Paul Godley, Barry Goldwater, Leon Deloy, etc.

2. **Voices of well known pro's:** Marconi, Armstrong, Alexanderson, DeForest, Owen D. Young, Sarnoff, Jack Binns, Hugo Gernsback, Clarence Tuska, Haraden Pratt, Alfred Goldsmith, etc.

3. **Code signals:** Simulated spark of Titanic SOS, NAA, Trans-Con, high-speed Morse, Alexanderson alternator, etc.

4. **Old time radio programs and music.**

THE MUSEUM

NEW EQUIPMENT in A.W.A. Museum

(sets, parts, magazines, books, etc.)

W6SAI, W7JY, Norma Driscoll, Fred Chesson, Ed Culver,

INSURANCE IS UP . . .

The current increase in insurance rates has affected AWA, too. Our renewal preium for the Museum (liability, fire, theft coverage) was about $3000, which we managed to get somewhat reduced, but it is still a far cry from the $1000 of a few years ago.

As is the case with most museums, AWA cannot afford full coverage on all artifacts, but their security is guarded in several ways:

1. A dual burglar alarm system, one of which alerts a central security office.
2. Smoke/heat detectors, also tied in with a central office.
3. Distribution of artifacts among various locations.
4. Securing valuable pieces in showcases or behind barriers to prevent easy access.
5. Having a description, listing and identification of all valuable equipment.

BOY SCOUTS HELP AWA

A.W.A. wishes to thank Boy Scout Troop #53 for the fine job they performed this spring in cleaning the Academy grounds. Under the leadership of Scout Wayne Every, the boys volunteered to rake leaves and pick up fallen branches. Following this, the group entered the Museum and performed general cleaning. Thanks, fellows.

A.W.A. HISTORICAL MUSEUM

East Bloomfield, N. Y.
Free Admission

Museum Hours:

May 1st through October 31st
SUNDAY 2 TO 5 PM

June 1st through August 31st
SATURDAY 2 TO 4 PM
WEDNESDAY 7 TO 9 PM

Open to groups by appointment
Tele. (716) 657-7489

Museum Tele. (716) 657-6260

ADMINISTRATION
Chas. Brelsford
K2WW

CURATOR
Bruce Kelley
W2ICE

Publicity: Arthur Kelly, W2ROB

ACCESSION COMMITTEE

Roland St. Louis, K2LKH
Charles Bliley, K3NAU
Richard Fish, W2OWF
Curator

ACCESSION DATA REGISTRATION:

Ed Gable
Roland St. Louis
Jack Wenrich
Ed Maher
Lauren Peckham

MUSEUM MAINTENANCE and GUIDES*

Dave Atkins
Al Bowman, W2ZUX
Dave Crothers
Paul Feldman
Babs Fuller
Glenn Fuller, N2EXL
Bob Hobday, N2EVG
Doug McManus
Ed Maher, WB2ZJY
Brad Mitchell, WB8YGG
Ron Nelson, KA2GLG
Don Ray, WA2PKS
M. Rosenfeld, KA2JAJ
Bill Shaw, W2HYN

(**Officers and Directors also act as Museum guides.*)

AMATEUR OPERATION

W2AN: Geo. Batterson and B. Kelley
W2UTH/R: Henry Blodgett

COVER STORY:

This rare picture was taken Sept. 27, 1927. Details are lacking as to their mission but it is believed they are members of the WJZ staff about to take off on a radio observation assignment. Note the "A" and "B" batteries tied on the wing. (Photo from W3DUG.)